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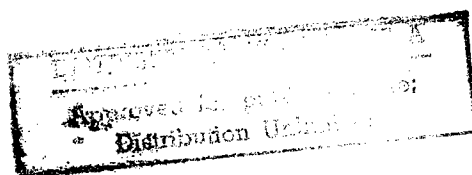
JPRS-UEN-84-001

3 January 1984

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# USSR Report

ENERGY



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3 January 1984

## USSR REPORT ENERGY

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## OIL AND GAS

### YUGANSKNEFTEGAZ STRIVES FOR GREATER OIL PRODUCTION

Moscow NEFTYANIK in Russian No 8, Aug 83 pp 5-7

[Article by K. Khasanshin, chief, and V. Vladykin, of the department of labor and wages of the "Yuganskneftegaz" [Yugansk Oil and Gas] association: "Yugansk Oilmen in the Struggle for the Million Tons of Tyumen Oil" under the heading: "Realizing the Decisions of the 26th CPSU Congress".]

[Excerpt] The collective of the "Yuganskneftegaz" association has initiated the socialist competition in the sector for raising the efficiency and quality of work and for successfully fulfilling the assignments of the 11th Five-Year Plan.

In the results of the All-Union socialist endeavor in 1982, the association was awarded the Challenge Red Banner of the CPSU Central Committee, the USSR Council of Ministers, the VTsSPS [All-Union Central Council of Trade Unions] and the Central Committee of the VLKSM [All-Union Lenin Communist Union of Youth].

In 1982 all the production assignments were fulfilled - realization of production, profits, productivity of labor, putting wells into operation, and the other indicators. Six hundred and eighty one thousand tons of oil were produced above the plan, 131 wells were put into operation, and 34,400 meters of rock were drilled through. The between-repairs period of operation for wells rose to 582 days with a plan for 480. Compared to the previous year, the specific labor consumption in servicing one well was reduced by 11.7 percent. The commercial speed of drilling rose by 12.7 percent, and the average drilling penetration for a brigade reached 50,000 meters.

The successful fulfillment of the plan by the association in many respects was due to the searching out and realization of the resources that enable the achievement of the highest labor productivity.

The development of the petroleum deposits was improved on the basis of a broad introduction of advanced experience. From the very beginning of the development, intensive systems for intrastrata stimulation of the formation have been applied which permits having a steady oil production with the utilization of the whole stock of wells. Three-tier systems of development are being converted into square block systems. A breaking up of production

facilities into smaller units is being done, and infill wells are being drilled. The cyclic injection of water into the formation is being carried out, and 191 wells have been converted into injection wells.

The accelerated conversion of flowing wells to the mechanical method of extraction (609 wells were converted which is 85 more than planned) has permitted reducing the rate of decline in oil production and, in individual deposits, has lifted extraction to almost double the projected level.

The work with the stock of wells has been directed toward increasing the period between repairs and optimizing the operating conditions of deep pumps, toward raising the reliability of the power supply system and above ground equipment, and toward the intensification of the inflows of oil to the bottom holes of wells. Measures were taken to raise the productivity of labor and the quality of work of brigades in underground and major repairs to wells. Because of improvement in transportation and material and technical provisions, idlenesses of brigades were reduced by 30 percent compared with 1981. The introduction of the experience of the NGDU [Oil and Gas Production Administration] "Arlanneft" [Arlansk Oil] of the "Bashneft" [Bashkirsk Oil] association into the underground repair of wells permitted improving the condition of the operational stock of wells while carrying out the least number of repairs. The planning and accounting indicators for the work of the brigades were improved as also was the system of material incentives for labor. While in the NGDU "Arlanneft" the activity of brigades in PRS [expansion unknown] was directed toward preventive maintenance; in our conditions it was directed toward accelerating the placement of wells into operation to increase production.

The plan for oil production in the NGDU "Yuganskneft" was over fulfilled by 166,000 tons. The growth in production for the year amounted to 949,800 tons. One thousand one hundred and two repairs, including 1,000 major repairs, were made which was 114 more than last year. In 1982, 290 wells were converted to mechanized extraction. This provided an additional 13,286 tons of oil a day.

The association paid much attention to improving the quality of oil treatment. The production of the highest groups in quality - the zero and first groups - amounted to 70 percent of the total quantity of oil turned in.

In the association the treatment of oil is carried out at the Ust-Balyksk, Mamontovsk, and Pravdinsk central collection points. To assure completion of the large amount of work in the treatment and turning in of oil, the NGDU carried out a number of important measures. Built and put into operation were: UPN, KSU [expansions unknown], treating facilities, and 5 DNC [expansion unknown] pumps at the Mamontovsk TsPS [central collection point]. Built and put into service were: two PTB-10 furnaces, two separator plants, and several TsNS [expansion unknown] pumps in the water return system of the Pravdinsk central collection point. In addition, replacement, repair, or modernization was done on the reagent facility, pumps, reservoirs, research operations and others. All this was conducive to improving oil treatment.



A substantial resource for increasing oil production is maintaining the formation pressure by injecting water into productive strata. In 1982, 129,634,000 cubic meters of water were injected, three cluster pumping stations were placed into operation, and 208 injection wells and 80 kilometers of low-pressure water conduits were built.

In the past year much work was done on increasing the utilization of waste water in the system for maintaining formation pressure. Completion of this work alone allows the injection of 34 million cubic meters of formation water.

Work was done on the comprehensive automation of 5 oil fields and 55 measuring stations. More than 150 kilometers of telemechanics lines were built. Construction of the foundation was completed for a shop for the automation of the production of the "Mamontovneft" NGDU [Oil and Gas Production Administration], the largest in the association - in this year it will extract more than 34 million tons from the depths.

One of the principal preconditions for successful operations and the fulfillment of current plans for the production of oil and gas is a regular tempo in the work of the drilling enterprises in providing for the necessary rate of drilling operations and the placing of new wells into operation.

A qualitatively new step has been made in the association in the matter of organizing preparatory operations which has permitted advancing the front of derrick installation and drilling operations. Here, widespread use has been made of such progressive methods as the construction of roads and cluster areas by hydraulic washing, the use of synthetic nonwoven materials instead of lumber, and complex methods of organizing labor in the construction of clustered well foundations and in internal oil field road construction.

The replacement of the old stock of drilling installations having an 80-ton lifting capacity with new, more powerful and productive 3000 EUK installations is continuing. Today the stock of these rigs has been renewed by more than 50 percent. This has shortened the time for movements within a cluster by 2-3 hours compared to the other types of installations with a simultaneous reduction in labor consumption for derrick installation work. The monoblock scheme for installing drilling rigs has found widespread distribution. It permits moving rigs within the limits of a cluster at any time of day and twice as quickly as before. With this, it has become possible for a drilling brigade, after a movement, to set about drilling at once without additional start-up and adjusting operations. As a result, productivity of labor in derrick construction rose by 7.5 percent compared with last year.

A building-up of the volume of drilling operations has become a characteristic of the oblast mainly because of the intensification of the work of the drilling brigades, the provision for uninterrupted work at all stages of the driving of a well, and improvement of the technology and organization of production. Thus, in comparison with 1981, the drilling penetration per brigade was increased from 48,600 meters to 49,600 meters. Twenty five brigades exceeded a penetration mark of 50,000 meters and, among them, 10 brigades achieved 60,000 meters, and 3 achieved 70,000 meters or more. The brigade of

the top-level foreman, F. D. Gabdullin of UBR [Administration for Drilling Operations] No. 2 achieved the highest penetration under the conditions of the Yugansk oil region - 81,097 meters of rock.

For the first time in our sector of industry, in Nefteyugansk and Nizhnevartovsk a comprehensive organization for the driving of wells is being introduced. At present 62 brigades are working according to this method. Among them are 24 drilling brigades, 12 well stimulation brigades, 11 derrick installation brigades, 5 back-filling brigades, and others.

The comprehensive organization for the construction of wells sets as its goal the shortening of the time for driving clusters of wells mainly by reducing interstage idlenesses. The trial use of comprehensive organization for the construction of wells has shown that wherever the leaders of the interfacing organizations and brigades carried out the agreed obligations, there is a shortening of the cycle of driving wells and of the inter- and intrastage idlenesses.

The fact that the association has given much attention to the development of specialization and to strengthening certain services has great importance for successful operations in the principal production. Thus, a central pipe base was created which improved and accelerated the delivery of pipes directly to the place where they are used. The central bases for rolled metal and repair of oil field and drilling equipment were converted into large enterprises.

Technical progress enriches the content of work, leads to a growth in the qualifications of the workers and increases their creative activity. Socialist endeavor is important as a form of worker activity, their pioneering and enterprise, and business initiative. The forms of socialist endeavor used in the "Uganskneftegaz" association assist in solving specific production problems. These are: the productivity of labor, improving the quality of the product, conservation of raw materials and supplies, providing for a more efficient use of working time, curtailing idlenesses and nonproductive expenditures of labor, and others. Sometimes the endeavor is directed at a specific production problem which is a "bottle neck" in production. At the associations enterprises preference is given to those forms of socialist endeavor which focus workers on the achievement of the final production result.

The personnel of the brigades, shops and enterprises, after discussions, accept sound specific obligations. The course of the endeavor is constantly monitored, the results are summed up in timely fashion, and wide publicity is given to the results. This seemingly simple thing involves much organizational work and constant attention to the endeavor.

The spreading of initiatives, pioneering and creative undertakings occupies an important place in the development of socialist endeavor. In the movement "No one lagging in the line!", 30 brigades, 6 shops, and 4 enterprises took part. In the movement "From the high quality of everyone's work - to high efficiency in the work of the collective" 11 brigades, 2 shops, and one enterprise participated. In the movement "Work in relays for the maximum extraction of oil from each well" there were 14 brigades, 29 shops, and 3 enterprises, and in "The 11th Five-Year Plan by 22 April 1984" - 5 brigades. In all, more than 20 creative undertakings were developed in which more than 20,000 persons participated.

In the association's enterprises, special importance is being given to spreading socialist endeavor for the ahead of schedule achievement in this Five-Year Plan of the extraction in one day of one million tons of oil and one billion cubic meters of gas. The struggle for these goals has become the definitive condition for the personnel of the association. To this goal, all the organizational and political work of the party committee, the trade union committee and the administration has been subordinated. All enterprises have established their own goals and all shops, brigades and sections have specific assignments.

On September 4th - the Day for oil and gas industry workers - the association should achieve a daily oil production of 166,100 tons. This will be the substantial contribution of the Nefteugansk people to the Tyumen million.

In the conditions of the endeavor for the extraction of one million tons of oil and one billion cubic meters of gas, apart from the principal indicators (oil production, drilling penetration, number of constructed drilling sites, volume of shipments, and so on), there also have been included the quality of completed work, reduction of the level of overtime work, conservation of fuel, energy and materials, improvement of the condition of labor discipline, the introduction of new equipment, and participation in innovative work. In the socialist endeavor for the ahead of schedule achievement of the one-day oil production goal 562 collectives have taken part including 302 brigades, 88 shift teams, 28 sections, 62 shops, 47 enterprises, and 27 columns. The results are being summed up monthly. Each labor collective knows how much remains for them to do to reach the position which will determine a daily production of one million tons of oil and one billion cubic meters of gas. Publicity on the progress of the endeavor is being provided through the posting of indicators, films of socialist endeavor, stands, information bulletins, placards, and an illustrated newspaper. The course of the endeavor is regularly covered in the associations widely circulated newspaper, ZA YUGANSKUYU NEFT'."

The clear-cut organization of labor, production pioneering, and activity in socialist endeavor is conducive to the achievement of the high labor indicators in the leading brigades. Thus, P.A. Tret'yakov's oil and gas producing brigade from the "Mamontovneft" NGDU came forward as an organizer of an endeavor of interfacing groups which was intended to increase the period of work in between repairs at wells. Here, beyond the work of the pumpers, a definite number of wells was secured, and an optimum procedure for by-passing wells during repairs was developed. New equipment and technology is being used. Wells are being systematically treated with inhibitors. Solution KhT-48 is being widely used against the deposition of paraffin which has increased the time between periodic cleaning of pipes from 16 to 20 days. All these innovations permitted P. A. Tret'yakov's brigade to take second place in the endeavor of the sector and the foreman was awarded the title of Laureate of the USSR State Prize in 1982 for great achievement in work.

At enterprises of the "Uganskneftespetsstroy" trust an advanced form for the organization and stimulation of work is being introduced which is based on enlarged comprehensive brigades with payment for the final result of the work according to a unified order. Twenty to twenty five dump truck drivers, 3-5 excavator operators and 2-3 bulldozer operators are introduced into an enlarged comprehensive brigade. When necessary, repair mechanics and motor vehicle tow truck drivers are included. The creation of such brigades and the efficient organization of their work permits achieving a maximum acceleration in the grading of clusters and of internal oil field roads which increases the productivity of labor by 15-16 percent and curtails labor turnover.

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CSO: 1822/12

## OIL AND GAS

### EXTRACTION OF OIL AND GAS ON CONTINENTAL SHELF

Moscow EKONOMICHESKOYE SOTRUDNICHESTVO STRAN-CHLENOV SEV in Russian No 8, Aug 83 pp 14-16

[Interview with Yevgeniy Shaposhnikov, deputy minister of the Shipbuilding Industry of the USSR, conducted by the main editorial offices: "The Goal: The Extraction of Oil and Gas on the Continental Shelf"]

[Text] [Question] How is production proceeding of equipment for exploration and extraction of oil and gas on the continental shelf of the USSR?

[Answer] In 1949 in the USSR a unique field was discovered, Neftyanyye Kamni, and from that time the "Caspian Venice" has yielded many millions of tons of high quality "black gold." This prominent event provided the impulse for the development of equipment for the exploration for and extraction of liquid and gaseous fuels on the continental shelf.

The first floating drilling rigs (PBU) for prospecting and exploration operations, the "Apsheron" and the "Azerbaydzhan," were built in the USSR in the 1960s for operations at ocean depths of up to 20 meters. Subsequently a series of self-elevating PBU of the "Baky" class were built, which were designed to conduct drilling operations at a depth of 60 meters. A close study of this experience made it possible to increase the operating "ceiling" to depths of up to 70 meters.

The "Baky" PBU is made up of a rectangular, pontooned hull with four pillars. It is designed for the drilling of wells of up to 6,000 meters deep. The electrical power generating equipment consists of four basic, alternating current diesel generators with a capacity of 1,000 kilowatts each, and two auxiliary generators of 150 kilowatts each. The power supply for equipment operating on direct current (the drawworks, mud and cementing pumps), is provided by thyristor converters, and the PBU hull is lifted above the water by hydraulic mechanisms. The rig crew and drilling brigade are housed in comfortable one and two-person cabins. All living and service quarters are furnished with contemporary furniture.

The next stage was the designing of the "Shel'f" class semisubmersible PBU (in 1980). This type of rig is used for operations at depths of up to 200 meters. It consists of two lower pontoons, six stabilizing pillars, and an

upper hull housing all the machinery and equipment, including that for drilling wells of up to 6,500 meters. During storms the rig is capable of withstanding waves of up to 16 meters and winds up to 46 meters per second. The cabins and service quarters of the "Shel'f" are every bit as comfortable as its predecessors.

In addition to the PBU, the USSR also produces equipment for the extraction of oil and gas. These include piers, pile footings, stationary platforms, boats for the servicing of the ocean oil industry: crane ships, fireboats, "Kometa" model hydrofoils for the transportation of passengers and drilling brigades, and tugboats.

I would like to call particular attention to scientific research vessels. One of these--the "Poisk" class--conducts exploration with the assistance of various geophysical techniques, one of the primary ones of which is seismic exploration. This ship displaces about 1,100 tons. Smaller boats of the "Agat" type are used for work in shore areas.

One more type--crane ships of the "Yakov Kyazimov" class. They service piers and shallow water stationary platforms in the Caspian Sea. A crane with a lifting capacity of 25 tons is located on the bow portion of the upper deck. The space between it and the aft superstructure is used for large loads.

The "Ker Ogly" is a veteran of the Soviet fleet among this class of ship. For 17 years now it has been helping to carry out assembly work on stationary extraction platforms at sea. A full swing crane located on its starboard side has three hooks with lifting capacities of 280, 140 and 16 tons.

[Question] How and why did cooperation begin in this area between the USSR and the other member countries of the CEMA and the Socialist Federated Republic of Yugoslavia (SFRY)?

[Answer] This cooperation acquired a particularly intense character beginning in the mid-1970s.

Inasmuch as the equipment being utilized for exploration for and extraction of oil and gas in part represents apparatus which is nontraditional for the shipbuilding industry (various kinds of PBU, stationary platforms for the extraction of raw materials, etc.), their construction was preceded by scientific research. Our partners were invited to establish the basic paths of production relationships, to formulate a uniform set of standards, etc.

One of the first joint themes was the "Definition of the Fundamental Directions for the Construction of Floating Equipment for the Exploration for and Extraction of Mineral Resources on the Continental Shelf and in the Pacific Ocean." This was carried out between 1975 and 1979 by the People's Republic of Poland, the Romanian Socialist Republic, the USSR and the SFRY, and its results found practical application. It established the advisability of creating a self-elevating PBU designed for operations in ocean depths of up

to 100 meters, and resolved questions of a design and assembly nature. These recommendations were utilized in the USSR for the creation of a new rig of the self-elevating type. The results of this project also made it possible to formulate the technical assignment involved in the design of a ship for the conduct of complex geological and geophysical experiments. At present this ship is being built in the People's Republic of Poland.

Regulations were likewise agreed upon for the construction and classification of PBU, and research conducted regarding the assurance of their structural integrity. This all led to the production of equipment designed specifically for prospecting and exploration at the initial stages of the development of an oil and gas field.

In accordance with agreements, the Polish side must design, set up the production of, and then build in the USSR seven types of ships and two ocean-going barges with a carrying capacity of 5,000 tons, to transport the superstructure modules for stationary drilling platforms and two sets of accompanying equipment for these modules. The design will be executed according to the technical specifications of the Soviet side. Along with this, Poland is slated to receive from the USSR special complementary and laboratory equipment.

In 1982, contracts were signed between the two fraternal parties for the export to the USSR of ships for the carrying out of complex scientific research on the continental shelf, ships for the loading and transporting of oil industry equipment, equipped with a crane with a lifting capacity of 40 tons), supply ships and ships for putting out fires on rigs both in the open ocean and in shore regions. Designs were agreed upon for geophysical ships for carrying out assignments in shallow water areas, boats for the transportation to ocean oil installations of passengers, light cargo and mail, and ocean-going barge platforms to transport block modules to their assigned location. On 16 July 1982, the "Neftegaz-1" was launched from its construction berth at the Shchetsin shipyard imeni A. Varsky. It is the first of 33 ships slated for construction in the USSR. At the end of 1982 the Polish side was given the technical specifications for the modules of the upper structures of stationary deep water platforms for the drilling, extraction and transportation of oil and gas.

Equipment for developing the mineral resources of the shelf are also being produced in Romania. The first self-lifting PBU, the "Gloriya," with a maximum working depth of 90 meters and drilling capacity of up to 6,000 meters, was built in this country in 1976, and the second, the "Orizont 1," in 1979. Currently the USSR and the Socialist Republic of Romania are holding discussions regarding possible cooperation in the design of new self-lifting PBU designed for drilling wells of up to 6,500 meters in water depths up to 100 meters.

Five supply ships with a deadweight of 770 tons have been built in the SFRY for the USSR. Each of them is equipped with a winch which enables them to tow various objects, including PBU. The USSR also receives from the SFRY

ships of the "Kapitan Dolgopolov" class with a crane with a lifting capacity of 100 tons.

Currently, in accordance with the program of multilateral cooperation between the member countries of the CEMA and the SFRY in the area of ship and ship machinery building for 1981-1985, experiments are being conducted to determine a rational mix of means for the extraction of oil and gas from ocean depths of more than 100 meters and for the development of oil and gas fields under Arctic conditions. Particular attention is being paid to the sturdiness and hydrodynamics of the PBU. The USSR is cooperating with the People's Republic of Poland on the topic of "The Formulation of a Proposal for the Makeup and Characteristics of Series of Technical Equipment for Oil and Gas Extraction in Arctic Oceans." The Soviet Union will be the construction site of another self-elevating rig for the drilling of wells at sea depths of 100 meters. There are also plans to put into service a ship for work at depths of 300 meters which will be equipped with a system for dynamic positioning, crane ships (including those developed cooperatively with the People's Republic of Hungary), stationary platforms for well drilling and raw materials extraction at depths of 100 meters and more. A large amount of scientific research has been targeted for the current 5-year plan including research on the design of technical equipment.

The experience of simultaneous work by the member countries of the CEMA and of the SFRY in this and in other areas of science and technology, clearly demonstrates that this is cooperation between reliable partners who are fulfilling their obligations on schedule and with a high level of quality. And this allows us to express our conviction that all the planned projects will be successfully completed.

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CSO: 1822/35



## OIL AND GAS

### OLD OIL-BEARING PROVINCE BEING RESTUDIED

Moscow PRAVDA in Russian 20 Sep 83 p 2

[Article by L. Shabalin, correspondent of the Irkutsk oblast newspaper VOSTOCHNO-SIBIRSKAYA PRAVDA : "The Nepskiy Dome" with subtitle: "Comprehensive Development for the Eastern Region".]

[Text] Twenty one years ago near the village of Markovo in the Lena river region, a fountain of Cambrian oil spouted from a well. And so, in Eastern Siberia a new oil and gas bearing province was opened up - the Nepskiy dome. By the end of the 1960s, however, fewer wells turned out to be fortunate. Some people concluded the region was not a good prospect. The rate of exploration was reduced. But when geologists found the Yarakhtinsk and other deposits, opinions changed. The problem of evaluating the Nepskiy dome was posed anew. In later years the Danilovsk, Verkhnechonsk, and Dulisminsk areas have given commercial flows of oil.

On approach to the Verkhne-Markovo airport, which till recently was called Neftelensk, the bright flame is clearly visible.

"Waste gases are burning off" explained a companion. "We in the settlement now know no hardships - gas gives us both light and heat".

L. Obchenkov, chief of the "Vostsibneftegazgeologiya" [Eastern Siberian Oil and Gas Geology] association, later explained that the industrial use of this formation had been authorized to begin. An experimental well has been reactivated, and the electrical station and the boiler house now operate on gas. The residents of Markovo are proud that they were the first to lay the gas line in Irkutsk Oblast, to bring the power and boiler plants on stream.

The bowels of the Nepskiy dome already are serving the people. Hundreds of thousands of rubles have been saved by replacing the diesel-electric power station with a gas-turbine one. Annually, 1,500 tons of diesel fuel and up to 5,000 tons of coal are being saved. The apartments of the geologists, the industrial base, the club, the kindergarten, the hotel, and the hospital are being reliably heated. Of course, the commercial use of gas in the oblast is

a new business. Possibly not more than one more year may be needed before the step will be taken from the experimental to the comprehensive utilization of the natural resource. Meanwhile, the exploration for new deposits goes on.

At the last annual general meeting of the USSR Academy of Sciences it was said that the service of the geologists in substantiating the oil and gas content of Eastern Siberia has been significant. New underground stores of oil have been discovered and large deposits of potassium salts near the village of Nep are in the stage of commercial exploration. The village, by the way, was named in honor of a local river. In the spring at Ust-Kut, the out-of-town session of the Scientific Council of the USSR Academy of Sciences met about the problems of the economic development of the zone of the BAM [Baikal-Amur Main Line Railroad]. In the reports and addresses of the participants a high evaluation was given of the natural and economic potential for the future of the Upper Lena territorial and production complex with its center at Ust-Kut. And from it to the Nepskiy dome is but a stone's throw away.

The Nepskiy potassium basin merits special attention. On the basis of the Nepskiy resources scientists reckon a plant can be built having a capacity to produce several million tons of potassium chloride per year. The northern expedition of the "Irkutskgeologiya" production association is continuing operations on the evaluation of the local deposit.

"The collective was organized several years ago" says V. Dubinin, general director of the association. "In the difficult conditions of the remote taiga forest, everything for the living and working of the people was created".

It was not easy for these searchers of the depths. The northern oblast is entirely without roads, is swampy, and hilly. It is difficult to deliver freight here. As the geologists joke to themselves about it, they make use of the services of the most skillful builder of northern roads - frost. In spring you can't get here without aviation. The depths are assaulted by oil prospectors. Every victory inspires the people.

"Our collective is fulfilling the planned assignments" says G. Obukhovich, general director of the "Vostsibneftegazgeologiya" association.

In the Danilovskiy area, foreman V. Tyumentsev's brigade has completed driving the next well with happy results - there is gas! A commercial flow was obtained from a new stratum. Under the leadership of the experienced foreman, the brigade confidently copes with the problems. Vasiliy Dmitriyevich has been working in the Lena expedition since its formation - almost a quarter of a century. No wonder he is called the drilling ace. He was awarded the medal for "Labor Valor" of the Order of the Labor Red Banner.

The people here are devoted to their work. Many of them have been devoted to geology for ten years. They have had the joy of victories and the bitterness of dry wells. In the expedition remain those who believe in the oil of the Nepskiy dome. The Danilovskiy deposit, where the principal forces of the association are concentrated right now, is giving hope. Recently, in the Lena expedition alone, three wells gave oil and one - gas.

The successes of this association's workers in many ways was predetermined by the efforts of the geophysicists of the Angara-Lena expedition. Its collective perfected the methods of direct searches using seismographic survey data, all delineating the deposits with great accuracy. Hence, less drilling is required.

When we were in Markovo, A. Klipov's brigade was preparing to drill the next well in the distant Katanga taiga. This is on the border of the Irkutsk oblast and Evenkiya. We wanted to get there. But, a strong wind, not for the first time, delayed the flight.

Finally, they gave us a weather "all clear". The helicopter took us hundreds of kilometers away. It's all dense taiga with bald patches of lakes and tortuous strips of rivers. Various cargoes are transported here along winter roads.

"The first work party took almost a month to get here" noted I. Molchanov, president of the trade union committee of the expedition.

A forty-meter drilling rig stands on the shore of an Evenkiysk river. Alongside are six log houses, an electrical plant, a mobile unit, a stack of pipes, and a bulldozer. It was not easy to bring all this. Actually, the drilling rig alone weighs 400 tons. V. Gudov's comprehensive brigade under the leadership of superintendent V. Sedunov had assembled it a week ahead of schedule. Engineer V. Moskvitin had reported this by radio on that day.

The deep winter snows and swamps extremely complicate the work of the geologists. But the people do not lose courage. The diesel drills roar, the helicopters, even in bad weather, penetrate to the distant point. Along the Lena, seismic survey shots penetrate the taiga. Geologists and geophysicists, drillers and topographers, drivers and bulldozer operators carry on the difficult work. The state gives them much assistance. The geophysicists already have a third-generation computer. The power available per worker has grown several fold and additional equipment has been received. The Preobrazhensk oil and gas prospecting expedition has had its base shifted over one hundred kilometers to a village with the same name--Podvoloshino. The collective is completing the construction of the base and dwellings and studying the new areas.

So far not everybody is succeeding in making up the time lost earlier in drilling the deep wells. The general problem for the six units occupied on the Nepskiy dome is a disproportion in the capital investments for the build-up of production capacity and for the construction of dwellings, social and cultural facilities, and the industrial base.

"Not counting dwellings, a half a million rubles have been appropriated for the social needs of the collective. However, we are able to do little for ourselves - we need the help of "Vostsibgeologstroy" [Eastern Siberian Geological Construction Trust] that's located in Lesosibirsk in the Krasnoyarsk territory. Meanwhile the central board has done nothing for us" complains V. Kucherenko, chief of the Angara-Lena expedition.

When the Irkutsk section of the BAM came into steady operation, many constructors were freed for other work. Now, for example, the "LenaBAMstroy" trust [Lena-BaikalAmur Main Line Construction Trust] could help in constructing such needed facilities for the social infrastructure in out of the way sites of the oblast. And detachments of the famous collective of the "Bratskgesstroy" [Bratsk Hydroelectric Construction Trust] are working east and west of Bratsk. It would be logical if a subdivision of "Bratskgesstroy" took part in the exploitation of the deposits in the Nepskiy dome which is not far away.

The personnel of the Lena oil and gas prospecting expedition are seriously in need of aid. Little freight is delivered here. There are no roads. From December to March it was required to bring 25,000 tons of freight in over the winter-snow roads, but only a small part was delivered. To avoid this in the future the areas at the temporary bases and drilling sites must be prepared even in the summer time. Here there are few large-capacity motor vehicles with enhanced cross country capability. Basically, we have no cargo lifting machinery. It is necessary to contrive in every way in order to unload the equipment which has weights up to 25 tons.

The geophysicists need more powerful equipment. Then they would be able to work more successfully. Today the taiga is littered with broken down C-100 and T-130 bulldozers. These machines are not suitable here. In a word, the machine builders are in debt to the northerners.

The replacement of low-powered motor vehicles with gasoline engines with large-capacity diesel machines will save much fuel. Only today a thousand tons of gasoline was brought here for the motor vehicles. It would be enough to drill a half dozen large wells. There are no special machines for bringing in fuel. The local workers themselves contrive containers, placing them in the bodies of the ordinary trucks. The Lena association of steamship companies has been able to give the geologists substantial aid. Along the Lower Tungusk river, which crosses the Nepskiy dome, cargoes can be ferried for a considerable distance. However, ships having a small draft are needed. At the Zhataysk ship repair plant in Yakutsk, production of paddlewheel motorships has begun. Production of such ships should be accelerated.

The geologists of the North are acutely in need of comfortable mobile homes a helicopter can deliver into the most inaccessible corners of the taiga. In Krasnoyarsk a house-building combine is being built where it is planned to manufacture such portable shelters. Unfortunately, the activation of the combine is being dragged out, and the geologists are forced, as before, to fell timber to build houses.

Yes, the geologists require much aid. They themselves have been called upon to carry on exploration more persistently, to strengthen their own productive base purposefully, and to give more attention to the construction of facilities for social purposes. Then the day when the Nepskiy dome deposits begins to serve the people will come more quickly.

## OIL AND GAS

### MILLION TON PER DAY GOAL REACHED IN TYUMEN

Baku VYSHKA in Russian 10 Oct 83 p 1

[Article by TASS correspondent V. Zhilyakov: "Hold your course, oilmen", under the heading: "On Duty in the Five-Year Plan".]

[Text] Tyumen, 30 September. Today the personnel of Glavtyumen'neftegaz [Main Tyumen Oil and Gas Administration] achieved an unprecedentedly high level of oil production. For the first time in oil fields a million tons of the valuable raw material was obtained in twenty four hours. Such a high level was achieved in less than twenty years. Not a single petroleum-producing region has known such an exceptionally high rate of production.

The petroleum producing centers of North Tyumen: Nefteyugansk, Nizhnevartovsk, Surgut, and Uray-Noyabrsk are in holiday decorations. But the sources of the energy flow -- the production sites -- are especially festive. Those who work here: drillers, derrick installers, geologists, builders have various vocations but one goal - the Tyumen million. The CPSU Central Committee approved this movement as a patriotic effort to realize the course developed by the 26th Party Congress for the continued acceleration of the Western Siberian oil and gas complex.

The initiative of the Tyumen people went far beyond the limits of the oblast. Included in the competition were enterprises of many union and autonomous republics, territories, and oblasts. Labor collectives of Moscow and Leningrad, Tatariya and Bashkiriya, the Ukraine, Belorussia, Uzbekistan, Kazakhstan, Latvia, Lithuania, and Estonia registered their own contributions to the Tyumen million with concrete roads, with high-yielding wells "Moskovskiy" "Leningradskiy", "Sverdlovskiy" and "Kievskiy" and with houses.

According to the call of the Central Committee of the VLKSM [All-Union Lenin Communist Union of Youth], the young workers of the enterprises and contractors undertook to look after the fulfillment of orders for the oilmen. The ahead of schedule achievement of the one million yield is a victory for the allies of the Tyumen oilmen - the pipeline builders, the aviators, and the rivermen who are participating in the development of the Siberian territory.

"Today's victory is special" says R. Kuzobatkin, deputy minister of the Petroleum industry and chief of the Glavtyumen'neftegaz administration. The competition for the Tyumen million gave a powerful boost to the further development of the Western Siberian complex and to the growth of its economy, culture, and science. New oil and gas regions and industrial enterprises were created and, in the workshops of the institutes plans for future cities are being developed. For the first time in the history of the exploitation of the Tyumen depths, the living space put into service amounted to more than two million square meters. The construction of schools, children's centers and cultural establishments became larger. But this is only the beginning of the patriotic movement. We are called to the development of it by the CPSU Central Committee decree about "The improvement and the organization of the practice of reviewing the results of socialist competition and the encouragement of its victors". Actually, in prospect is a further build-up of the rate of development of the deposits so as to successfully fulfill the main problem of the collective in the current decade - to assure the basic growth of oil production in the country.

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## OIL AND GAS

### KIRGHIZ GASIFICATION WORKERS REPORT ON ACHIEVEMENTS

Frunze SOVETSKAYA KIRGIZIYA in Russian 4 Sep 83 pl

[Article by R. Utyushev, deputy director of the republic production association "Kirgizgasifikatsiya": "An Award Obliges".]

[Excerpt] The personnel of the republic production association "Kirgizgazifikatsiya" celebrate their professional holiday in good spirits. According to the results of operations for both the first and second quarters, the association is named the victor in the All-Union socialist competition of the enterprises of the sector.

The high award was earned with persistent work. On the 20th of August 1983; that is, ten days ahead of schedule, the eight-month plan for the realization of liquified and natural gas was fulfilled. From January to August (taking account of the supplementary assignment) 50,000 rubles of services above the plan were rendered to the population. The plan for marketable construction products was over fulfilled.

Competing under the slogan: "The 11th Five-Year Plan Ahead of Schedule", the best indicators in the socialist competition were achieved by the collectives of the multiple base for liquified gas (KBSG) in the village of Sokulk and the "Issyk-Kul'gaz" base. Also, the personnel of the "Dzhalal-Abadgaz" KBSG base in the city of Frunze, the bases for liquified gas "Frunzegaz", "Oshgaz", "Tokmakgaz", "Kalininskiygaz" and others fulfilled the state plan ahead of schedule and adopted socialist obligations.

Right now in the republic 714,000 apartments are gasified including 392,000 in rural localities. As a result of zealous management, 13,000 kW-hrs of electrical energy, 19 tons of motor vehicle benzine, 2 tons of diesel fuel, and 6 tons of liquified gas, above the established assignment, were saved.

Much was done for the preservation of the air in the basin of the city of Frunze and other populated points in the republic. Thus, in the first half year 268 trucks were converted to gas fuel. Work in this direction is being continued. The carrying out of what is planned will save much benzine which will be directed toward other needs in the national economy.

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CS0: 1822/17

## OIL AND GAS

### ACCOMPLISHMENTS, PROGRESS OF ASTRAKHAN GAS COMPLEX DESCRIBED

Moscow SEL'SKAYA ZHIZN' in Russian 21 Aug 83 p 3

[Article by A. Golovko: "The Birth of a Giant" with subtitle: "On Construction for the Five-Year Plan".]

[Text] "To set about the formation of the industrial centers for extracting and processing gas and gas-condensate and also for producing raw materials on the basis of the Astrakhan gas-condensate deposit."

/From "the basic directions for the economic and social development of the USSR in the years 1981-1985 and in the period up to 1990"/

Until recently there were few who knew about the existence of the Aksaraysk station situated on the north-west border of the boundless semiarid steppes. Here, in the torrid summer days, every kind of life stands still. Only when the southwest winds blow does the steppe begin to move. Myriads of grains of sand are lifted upwards, hiding the sun. But it is precisely here that geologists came several years ago and began to search. There were failures and disappointments. All the same, they successfully uncovered a large gas-condensate deposit rich in sulphur. Drilling derricks rose up among the sand dunes.

Soon builders appeared, and the "Astrakhan'promgazstroy" [Astrakhan Industrial Gas Construction] association sprang up which has the role of general director of construction. Erection was begun of residential communities, facilities for production, cultural, and domestic purposes. Water and sewerage line were laid and also motor vehicle roads and railways.

Already the outlines of the settlement of three-story houses of increased comfort are appearing. Its street and squares are being asphalted and covered with concrete slabs. Side by side with the dwellings, the buildings for the dining hall and department store, the house of culture, and other facilities are rising.



Now the activities of the constructors are going farther out into the steppe toward the future gas processing plant. Foundations already have been laid for the production building, the motor vehicle base, the plant administration building, and for the gas-safety and the nitrogen-and-oxygen stations. With each day the tempo of construction of other facilities is building up.

From the highest point of the settlement for the builders, an impressive panorama is being opened up. Visible from afar, light brown cylinders are rising over the steppe. They are metal containers for cement. They are disposed in a relatively small area and serve as a reference point for the Aksaraysk industrial center. There are eight such cylinders - two for each plant preparing ready-mix concrete. Two of the plants are under the management of the "Promstroy-3" [Industrial Construction-3] trust and cover its own needs. The mixing process here can be done automatically, semiautomatically, or manually.

The efforts of the constructors, concurrent with the formation of the social and domestic infrastructure, are now being concentrated on the construction of the principal units of the complex and the gas processing plant itself. The high rate of construction of the gas-condensate complex dictates a need to accelerate the drilling of production wells and installing their wellhead equipment. Without this, it is difficult to count on successfully assimilating the capacity of the enterprise being built. And the drillers are making haste. While in the past year somewhat more than 8,000 meters were drilled for wells by the administration for drilling operations of "Astrakhan'gaz-prom" [Astrakhan Gas Industry] in the trial production section of the deposit, it now is planned to drill 30,000 meters. It is planned to achieve such growth not only by the creation of new brigades and increasing the amount of equipment but also by raising the qualifications of the drillers and their foremen. For instance, last year V. I. Politskovskiy's brigade scored with the earliest penetration of the depths. By almost one and a half months before the normal time they completed the cycle of operations in drilling well number 110 which is for receiving commercial stocks of gas from the future gas processing enterprise.

Well number 111 also was done ahead of schedule by the testers. After the completion of the inspection of it, the brigade shifted to the gas pumping area to drill a development shaft. A. Shul'man's brigade works at a good pace, as does M. Tulin's drilling collective, and other drillers. Their work is of first priority importance. In this year it is planned to build nine drilling sites and to have 10-12 in transitory reserve.

The Astrakhan gas complex is the crash construction project of the country. It is called upon to make a substantial contribution not only to the solution of the energy problem, but also to the fulfillment of the Food Program of the country. The exploitation of the deposit already requires developments for a system of measures to protect the environment. As experience has shown, the most effective method for preventing the pollution of the environment with the waste water of gas fields and gas processing plants is the injection of the difficult- or impossible-to-clean stocks into absorbing strata in the earth's core. It is true that this method can scarcely be called ideal, but

it nevertheless assures the sanitary and hygienic safety of water reservoirs. And it is not by chance that it has been widely used in a number of regions of the country; namely, Bashkiria, Tataria, Checheno-Ingushetia and the Kuybyshev oblast. The Ministry of the Gas Industry organization has had sufficient experience in the underground burial of stocks.

The Aksarayskiy complex which is being created on the basis of the Astrakhan gas-condensate deposits will produce substantial amounts of waste water. As is known, the gas-condensate field and the processing plant are situated in close proximity to the Volga-Aktyubinsk flood plain and the delta of the Volga with their unique flora and fauna. This requires a specially responsible approach to the problem of the burial of industrial waste stocks and carrying out sanitary conservation measures.

In planning the gas complex in the area of the Aksaraysk steppes, engineering and geological researchers gave much attention to the question of the discharge and burial of waste waters, to the technology of using absorbing wells and the construction of underground reservoirs. An absolute guarantee is being made against the lifting of waste stocks into the upper layers of the earth and against the penetration of them into water reservoirs.

The preservation of the environment and the sanitary protection of reservoirs and underground fresh water are matters of exceptional importance and first priority. It requires the realization of a system of environmental preservation measures and the constant monitoring of their effectiveness.

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STABILIZATION OF OIL PRODUCTION IN BASHKIR ASSR

Moscow NEFTYANIK in Russian No 8, Aug 83 pp 8-9

[Article by M. Gallyamov and Ye. Lozin of the "Bashneft" [Bashkir Oil] association: "Search, Experiment, Introduction".]

[Text] The stabilization of oil production in Bashkiria in the period 1970-1980, and its maintenance at a high level was accomplished not only by the discovery, introduction and development of new deposits and pools, but also by the introduction of advanced systems for the development, equipping and exploitation of petroleum deposits.

The optimization of well grids, widely in progress on the deposits of Bashkiria, is not the only tool for increasing the day-to-day withdrawal of oil from the formations, but it contributes to an increase in the ultimate oil recovery. From 1971 to 1980, 2900 wells were driven on the Bashkir deposits to optimize the grid, and from them 83 million tons of oil were extracted. Scientists of BashNIPIneft [Bashkir Scientific Research and Planning Institute for petroleum] and the field men of Bashkiria reported that with the change from a 24-hectare grid of wells to a grid with a 12-hectare per well density on deposits of the Arlansk type, the day-to-day production of oil is increased by a factor of 2 and the coefficient of oil recovery grows by 8-9 percent.

At the Bashkir deposits the withdrawal of liquids from the formations is constantly being increased by the forced operation of wells. Over the years of the 10th Five-Year Plan the withdrawal of liquid from the formation was increased by 59 percent and the average yield of liquid per well rose from 40 to 53 m<sup>3</sup>/day; that is, it rose by 25 percent while introducing new wells with yields from 17 to 25 m<sup>3</sup>/day. The "Bashneft" association is the only association in the sector that is significantly increasing the average liquid yield of wells.

The change from a linear disposition of injection wells to zonal flooding with water has become a new direction in the development of the deposits. It has permitted a more efficient use of the energy put into the formation. It has permitted the regulation of filtered flows and the cyclic injection of wells with the connection and disconnection of zones. It has increased oil recovery from the formations. During the 10th Five-Year Plan, 863 injection wells were introduced and, of them, 730 were introduced as zonal injection wells.

Recently much attention is being given to increasing the rates of oil production from formations having oil reserves that are difficult to extract. At experimental zones in the Sharipovsk and Akineyevsk sections of the Arlansk deposit, the optimization of well grids together with intensification of the system of water flooding at sites with difficult-to-extract reserves led to increasing the day-to-day yields of the wells by a factor of 2 or 3 and, in some cases, by a factor of 5. There already are similar results at the Naratovsk deposit and in the acceleration of the development of the reservoirs in the carboniferous stratum of the Tuymazinsk and the Tournaisian stage of the deposits of the Chekmagushevsk group.

At each NGDU [Oil and Gas Production Administration], together with the institute, measures are being worked out for intensifying the development of sites having difficult-to-extract reserves based on the results of experiments that have been conducted.

In the 10th Five-Year Plan, the "Bashneft" association expanded the scale of injecting PAV [surfactant] solutions, polymers, gas, air during in-situ combustion, and special effects. From 1976 to 1982, 20,000 tons of PAV, 1,500 tons of polymers, 60 million cubic meters of hydrocarbon gas and wide fraction hydrocarbons, 50 million cubic meters of air, 45 million cubic meters of still wastes, and other substances have been injected into the oil formations. As a result, the scope of the stimulation of formations has grown. The amount of oil produced by the new methods comes to 1.5 million tons.

The Oktyabrsk branch of the VNIKANeftegaz [All-Union Scientific Research, Planning and Design Institute for the Comprehensive Automation of the Oil and Gas Industry] has developed an installation for stimulating the critical zone of wells with steam and gas, the testing of which gave good results. At present, together with the UNI [Ufimskiy Petroleum Institute] and the UAI [Ufimskiy Aviation Institute] an installation for producing steam and gas at the bottom hole of a well is being worked out with prospects for its serial production. Methods are being developed for stimulating with a hot foaming acid treatment for limestone, and of cleaning the bottom hole of wells by reducing the formation (bottom hole) pressure to a minimum by the use of foaming solutions. A method has been proposed and tested for regulating water contamination of well production by injecting a polymer gel through injection wells. An experimental section has been created for the microbiological stimulation of a formation to increase oil recovery. Preparations are being made to inject carbonic acid with hot water.

At the "Yuzharlanneft'" [Southern Arlansk Oil] NGDU the injection of imported and domestic polymers has been carried out to increase the degree of oil extraction. As it turned out, for the injection of one ton of type PAA [polyacrylamide] polymer, there is a 92-100-ton supplementary extraction of oil. The field workers of this NGDU developed and manufactured proportioning installations capable of injecting a total of up to 2,000 tons of dry reagent per year, but the shortage of reagent does not permit introducing polymer and water flooding at the projected scales.

In the course of an experiment on in-situ combustion at the Arlansk deposit, a reduction of the routine water contamination of the well product was noted which showed the rather high potential possibilities of the method. The project was carried out first for the conditions of a late period of well life and for comparatively large depths. Now, a new unit installation, OVG-3M, is being built having 9 compressors, and the method will be used in an adjacent section. Industrial data show that using the method is complicated by an increase in corrosion of oil field equipment, and by formation of very viscous and resistant emulsions which hamper the collection, transportation, and treatment of oils.

Good results were obtained during the injection of gas and condensate at the Ozerkinsk deposit. At the end of 1980 the day-to-day production of oil from the deposit began to grow, and in the present year, after the injection of 10 million m<sup>3</sup> of gas and a certain quantity of wide fraction distillate, a growth in oil production by 25 percent was noted. The method unquestionably is effective and practicable. But already the delay in the deadline for the construction of the compressor station is being acutely felt in this region.

The association, for the first time in the sector, is injecting large quantities of industrial and waste waters from other enterprises into the system for maintaining formation pressure. It has been reported to us that with this, the coefficient of oil recovery is increased by 3 percent. Under the conditions of intensive withdrawal and injections, including the injection of waste water, we are one of the first to encounter the phenomena of the corrosion of oil field equipment. Since 1970 in Bashkiria, for the first time in the sector, corrosion inhibitors have begun to be used. On the grounds of the BashNIINP [Bashkir Scientific Research Institute for Petrochemical Production] an experimental installation has been built for supplying type IKB [expansion unknown] corrosion inhibitors.

At the same time, work has begun on coating the interior surfaces of NKT [oil well tubing], water-line pipes, and containers with epoxy resin or enamel. For this, installations for coating with epoxy resins have been built at the "Tuymazaneft" and "Ishimbayneft" NGDUs. Also, a shop for coating 300,000 meters of NKT per year with enamel has been built on the grounds of the Tuymazinsk medical glass plant. In the current year in the same place, construction was completed of a shop for coating 300,000 meters per year of water-line pipe having diameters up to 300 mm. Annually at the oil fields of the association 3,200 - 3,500 tons of corrosion inhibitors are being used, and for 1983, 7,000 tons have been allotted with a demand for 8,500 to 9,000 tons. Thus, the problem of corrosion, despite the difficulties, is being solved successfully.

The association also is working on the prevention of the formation of salts and paraffin in wells. Three hundred and ninety wells (out of 1400 in the sector) have been treated with inhibitors against salt deposition, and against resinous paraffin deposits, 1000 wells (of 4000 for the sector) have been treated.

To reduce the pressure in pipe lines at all the enterprises of the association internal pipe deemulsification is being applied. In the systems for oil collection there are 274 mechanized points for feeding in deemulsification reagents. Pumps developed and produced by the Oktyab'rsk TsBPO [expansion unknown] and the pump BR-25 produced by the Oktyab'rsk plant have given a good account of themselves in proportioning the deemulsifiers.

A great achievement of Bashkir oilmen is the massive introduction of the comprehensive industrial method of drilling out and equipping petroleum deposits with multiwell clusters according to the standard plan worked out by specialists of BashNIPIneft. Insufficient standard equipment is being manufactured in the Oktyab'rsk TsBPO. The advantage of the method consists in a reduction by more than half in the requirement for land for one well, the reduction of the time for equipping a deposit, and a curtailment of the specific number of servicing personnel.

Working with a stock of wells requires constant systematic monitoring, engineering analysis, planning, and the conduct of geological and technical actions of which the NGDU of the association annually carries out more than 5,000. Principal among them is increasing the withdrawal of liquid from each well by: changing the technological conditions of exploitation, optimizing the deep pumping equipment, regulating withdrawal and injection, stimulating the critical zone of the formation, lowering pipe pressure, and others.

In the equipment for oil production one of the chief problems is to increase the period of time between repairs for operating wells under the conditions of intensive withdrawal.

At the beginning of the present year the association had 14,700 wells including 3,950 equipped with UETsN [electric centrifugal pump unit] with 10,700 with ShGN [noise generator pump]; that is, all oil is produced by the mechanical method. Thanks to the annual increase in the number of wells from 1971 to 1982, the stock of wells rose by 80 percent. The annual number of underground repairs carried out on this stock for this same period was substantially reduced. While in 1971 there were 20,418 repairs, in 1981 there were 17,627 in all. Hence, the frequency of repair amounted to 2.43 and 1.25 respectively. Over this same time the between-repairs operations of wells was increased from 132 to 330 days; that is, by a factor of more than 2. In the matter of the increase of the between-repairs period, there was a sharp curtailment of emergencies with sucker-rod strings and other underground equipment. In 1971, on the average for one well there were 0.85 repairs for a broken sucker-rod string, but in 1981 it had become 0.27. With the constant build-up of the withdrawal of liquid from each well, the reduction of the frequency of repairs and the increase of the between repairs period of well operation are accompanied by an increase in the coefficient of operation of wells and of the coefficient of their utilization.

The number of brigades for underground repairs and maintenance personnel at present remains at the level of 1971 and is the lowest in the sector. The qualitative improvement of the operational indicators for the stock of wells was caused by the introduction of progressive technology, of equipment for repair operations, and of automation of the processes of extraction. In

all at present in the "Bashneft" association, 44 out of 47 oil fields on which 98.8 percent of the oil is produced are comprehensively automated. The annual economic gain from the introduction of automation amounted to 2,850,000 rubles. Automation changed the appearance of the field, raised the technology of production to a new level, and lifted the qualifications of the workers and ITR [engineering and technical workers].

The technical and economic indicators on the collection, transportation, and treatment of oil on the fields rose appreciably.

Seminars have been used to appraise the quality of the work of our oil field men. There were seminars for the general directors of the oil producing associations for studying the experience in operating wells in the "Arlanneft" NGDU, seminars for the principal geologists of the associations for studying the systems for automating the oil fields of the "Yuzharlanneft" NGDU, and seminars for specialists of the NILs [Scientific Research Laboratories] on the chemicalization of the oil production processes of the "Chekmagushneft" NGDU.

The envelopment of the principal production by the first stage of the ASU-neft [Automatic Control System for oil] has been completed. In all NGDUs and UBRs [Administrations of Drilling Operations] automatic systems for the control of production are functioning. The assimilation of third-generation computers is completed.

All the conditions have been created in the association for the introduction of new and the newest achievements of science and technology. We have created special bases for the industrial introduction of chemical methods to increase oil recovery from formations. There is every possibility of expanding by a factor of 2 to 2.5 the use of heat methods; for example, TGKhV [expansion unknown] at the critical zone of wells. In the beginning of 1984 we will put into operation an installation for injecting hot water into formations. The installation has an output of 150 m<sup>3</sup>/hr at a temperature of 150 C and an injection pressure of 150 MPa.

For the years 1981 to 1985, the association's technical service has composed a plan for the mechanization and automation of production processes, for the modernization and construction of facilities, for the introduction of new equipment and technology, for scientific research, and for the introduction of new methods for increasing the recovery of oil from the formations.

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CS0: 1822/12

## OIL AND GAS

### NEW DRILLING RIGS, URALMASH 4000D-1, 4000E-1

Moscow NEFTYANIK in Russian No 8, Aug 83 pp 10-11

[Article by G. Anikev of the Production Association "Uralmash": "The New Drilling Rigs Uralmash-4000D-1 and Uralmash-4000E-1" under the heading: "New Equipment".]

[Text] On the basis of long experience in the manufacture and operation of the easily serviced and highly reliable drilling rigs Uralmash-3D and Uralmash-4E which are well known to drillers, the new drilling rigs Uralmash-4000D-1 and Uralmash-4000E-1 have been created which have a number of substantial advantages.

#### Concise Technical Characteristics Of Rigs

	<u>4000D-1</u>	<u>4000E-1</u>
Allowable load on hook, kN	2000	2000
Specified range of drilling depths, m	2500-4000	2500-4000
Power on drive (input) shaft of lifting unit, kW	690	690
Power on drilling pump drive, kW	600	600
Largest pressure at pump discharge (in manifold), MPa	25	25
Overall diameter of rotor table, mm	700	700
RPM of rotor: minimum	12	22
maximum	210	210
Power of diesel-electric unit, kW	200X2	100
Weight of rig, tons	520	500

Note: With the replacement of a 5X6 reeving of the traveling block by a 6X7, the allowable loading on the hook is increased up to 2500 kN and the drilling depth, to 5000 meters.

Supplying of the drilling equipment in complete sets with A-shaped derrick, foundations, shelter housings, circulating system, and manifold ensures rapid and high quality installation of the rig as a whole.

Modular design of the foundations permits transporting and installing the equipment by the large-unit, small-unit, or modular methods depending on local conditions, site topography, and route conditions.



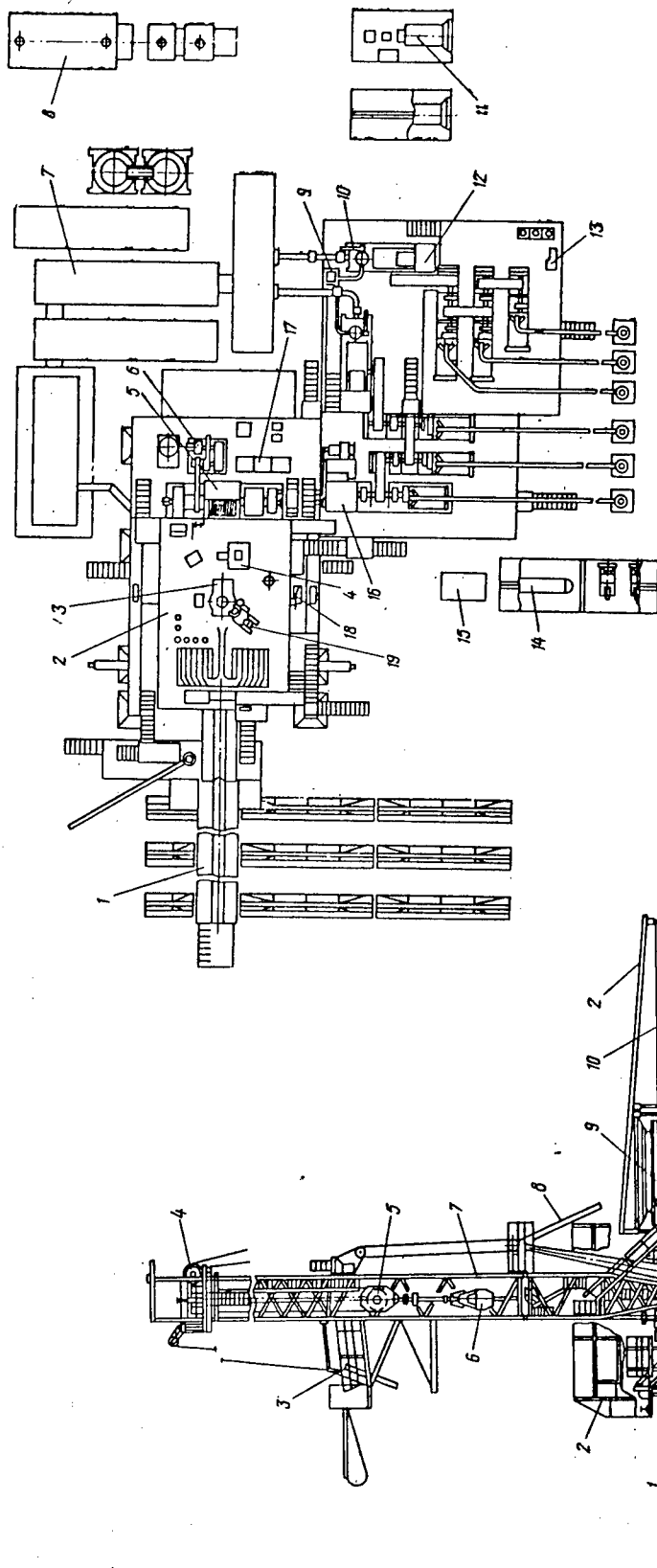


Figure 1. General view of Uralmash-4000D-1 drilling rig.

1. Crane on receiving platform, 2. Shelter housings, 3. ASP-3M4 set of mechanisms, 4. Crown block UKBA-6-250, 5. Traveling block UTBA-5-200, 6. Swivel UV-250, 7. Derrick VMA-45X250, 8. Gear for raising derrick, 9. Universal-joint rotor drive, 10. One-ton beam crane.

Figure 2. Plan of equipment arrangement on the Uralmash-4000D-1 drilling rig.

1. Receiving platform with racks, 2. Foundation, 3. R-700 rotor with PKR-560, 4. Auxiliary winch LV-15, 5. Winch LBU-1200, 6. Drill bit feed regulator RPDE-3, 7. Circulation system, 8. Fuel & lube oil installation, 9. Manifold, 10. Faucet on pump, 11. Power unit, 12. Drilling pump U8-6MA2, 13. High-pressure compressor, 14. Compressor unit, 15. Air dryer, 16. Transmission, 17. Electrical cabinet, 18. Mechanism for decuring traveling block, 19. Drilling hook AKB-3m2.

In the large-unit method of installation, the derrick and winch unit (either with derrick or without it) and the drive units are transported on TG-60 heavy trucks having a 60-ton capacity.

When transporting the derrick separately in assembled form, it is carried in the horizontal position on TG-60 heavy trucks. When transporting it in disassembled form, it is carried on standard transportation equipment.

In small-units and modules, the equipment is transported on PP-40Br mobile platforms, trailers, and standard transportation equipment.

A general view and a plan of the arrangement of the equipment of the Uralmash-4000D-1 drilling rig are shown in figures 1 and 2. Time requirements and heavy physical work in lifting and lowering operations are significantly reduced because the drilling rigs were outfitted with the ASP [expansion unknown] system of mechanisms of the cassette layout UBT extra-strong drilling pipe, a centralizer for casing pipes, and assuring capability for extending the drill string with the aid of a kelly rathole and drilling tongs.

The use of a regulator for the feeding of the bit into the bottom of the hole ensures automatic maintenance of a given load on the tool which substantially facilitates the work of the driller.

The configuration of the winch drive for, the primary drilling pump, and the rotor of the Uralmash-4000D-1 drilling rig permits regulating the rpm of the rotor independently from the operation of the pump. The inclusion of a third diesel in the drive of the second drilling pump assures operation of the latter at full power.

The electrical system for the drilling pump drive on the Uralmash-4000E-1 drilling rig permits smooth regulation of their output within the limits from 100 to 50 percent on each barrel.

The universal-joint transmission for the rotor permits controlling the torque transmitted by the rotor table by means of a PKB [expansion unknown].

The 6.2 meter height of the foundation for the derrick and winch unit accommodates installing the necessary blowout prevention equipment.

The installation of the drilling winch at a 2.6 meter elevation (below the drilling platform) eliminates the need for installation cranes with large capacity and large boom outreach.

The productivity of the new drilling rigs is approximately 28-29 percent higher than that of the Uralmash-3D and Uralmash-4E drilling rigs.

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## COAL

### MEETING OF UKSSR COAL MINISTRY REPORTED

Kiev PRAVDA UKRAINY in Russian 17 Jul 83 p 2

[Article: " At UkSSR Minugleprom" ; passages enclosed in slantlines printed in boldface]

[Text] The scheduled meeting of the Minugleprom board examined problems in the socialist competition of miner collectives to implement the decisions of the 26th Party Congress and subsequent plena of the CPSU Central Committee. It was noted in particular that coal production is increasing. However, there are still quite a few shortcomings and bottlenecks as far as coal is concerned. The total volume of coal being extracted in the sector is still below the five-year plan target and labor productivity is growing slowly. There are still many mines which are not meeting state plans and which have fuel debts. Therefore the competition between collectives in the republic's lagging mines under the slogan: "For Output in the First Ranks" is of fundamental importance. It already encompasses more than 50 miner collectives, which for various reasons are experiencing disruptions in work this year.

The competition quickly acquired wings. All of the republic's production associations and mines have had conferences and shift meetings which raised the question of thoroughly improving the quality of mine work. Many collectives have developed specific measures to improve labor productivity at faces and have worked out the appropriate regulations and conditions for labor contests on a qualitatively new basis.

Here are the first results: / Eighteen mines which previously were not meeting state plans, in the second quarter left the ranks of the lagging and gave the national economy 175,000 tons of fuel in addition to the target. Especially distinguished were: the Mine imeni the newspaper PRAVDA, and the Mospinskaya in the Donetskugol' Association; the imeni A. B. Batov in the Makeyevugol' Association; the imeni Artem and the Slavyanoserbskaya in the Voroshilovgradugol' Association and the Donetskaya in the Krasnodonugol' Association./

In the second quarter these enterprises improved their work with respect to all techno-economic indicators and are worthy contenders for prizes. The successes here were attained through the organization of high speed digging of main underground haulage lines so that extraction sections would be supported by a stable front of coal removal work. They began to introduce longwalls into operation in accordance with the established schedule. Party and trade union organizations and managers at these mines have already done much to see that each section has developed and introduced a plan for the scientific organization of labor.

In recent times all the sector's mines have thoroughly and deeply analyzed the potentials for increasing loads at removal faces and improving labor productivity. The slogan: "For Output in the First Ranks" is especially widely supported by the following production associations: Donetskugol', Krasnoarmeyskugol', Torezantratsit and Krasnodonugol', something which cannot be said of the Oktyabr'ugol' and Dobropol'yeugol' Associations./ Not all enterprises there have genuinely conducted organizational work to overcome shortcomings. Neither are they everywhere fully using available reserves and potentials. At some mines engineering-technical leadership has weakened and breakdowns of machinery and equipment have become more frequent. /As a result, in July miners at the Oktyabr'ugol' Association were 13,800 tons of coal short of the plan, and the Dobropol'yeugol' Association was about 10,000 tons short./

It was especially stressed at the board meeting that this year it is essential to improve equipment and techniques and on this basis ensure accelerated growth rates in coal extraction, improvements in its quality and further increases in the sector's work efficiency. For the third year of the five year plan the republic's miners obligated themselves to extract at least two million tons of above plan coal. The socialist competition in the sector which has begun under the slogan: "For Output in the First Ranks" has an important role in the successful solution of these tasks.

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CSO: 1822/345

COAL

# COAL INDUSTRY OFFICIAL RESPONDS TO WORKERS' LETTER

Kiev PRAVDA UKRAINY in Russian 17 Jul 83 p 2

[Article by A. Manzhula, deputy minister, UkSSR Coal Industry: "An Answer to PRAVDA UKRAINY Concerning the workers' letter 'The Faces Await Equipment'"]

[Text] The letter from workers at the Belorechenskaya Mine, Voroshilovgradugol' Production Association, printed on 24 June, properly raises the question that longwalls with difficult to collapse roofs need new equipment capable of holding heavy loads.

The sector's enterprises are now testing the KMT complex under various mining engineering and geological conditions. In accordance with the recommendations of the DonUGI [Don Scientific Research Institute of Coal], the longwall where the letters' authors are working is using the Donbass complex. This machine has helped many mines achieve high loadings. However, on the spot checks have shown that mine and section managers are not observing DonUGI recommendations on torpedoing the roof. This has led to the roof settling into "rigidity". This was pointed out to the management of the mine and association, measures were taken to torpedo the roof and there is now confidence that the Donbass complex will work at high loads.

In June B. F. Bratchenko, the minister of the USSR Coal Industry visited the mine. He decided to equip the neighboring longwall with the KM-87UMP, having increased carrying capacity. This machine is now going to work at the mine.

After completion of testing and transfer to series production in 1984, the KMT complex will meet the desires of the Belorechenskaya Workers.

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## COAL

### CHIEF ENGINEER DISCUSSES MINE'S PROGRESS

Kiev PRAVDA UKRAINY in Russian 24 Jun 83 p 2

[Interview with V. Gontarenko, mine chief engineer, by N. Litvinenko:  
"The Subjugation of the Difficult Seams", no date, Donetsk Oblast]

[Text] The Dimitrov Mine, Krasnoarmeyskugol' [Red Army Coal] Association, is one of the oldest enterprises in Donetsk Oblast. It must be noted that for a long time the stars didn't shine on the mine. The turnaround came after the November (1982) CPSU Central Committee Plenum. At their meeting the miners announced: "We will be true to the honor of our home enterprise! We will extract more fuel and lower its cost." Today the miners have more than 50,000 tons of coal on the above-plan account. Average daily production exceeds the plan figure by more than 300 tons. V. Gontarenko, the mine's chief engineer, explains to a PRAVDA UKRAINY correspondent how the miners succeeded in overcoming lagging and are steadily improving extraction rates.

Our collective was lagging primarily because of difficult geological conditions. At a difficult seam we didn't succeed in fully using the capacity of machinery -- face machines and equipment frequently went out of order. As a result, brigades' output lowered and production discipline weakened.

This could not help but upset party and trade union organizations and the mine administration. In discussing the decisions of the November (1982) CPSU Central Committee Plenum, we outlined our own measures directed towards overcoming lagging. In particular, we created an operational staff which included leading specialists from all services and departments. We made a detailed analysis of the reasons for lagging and developed a precise plan of action.

At every section staffs were organized to prevent violations of labor and production discipline and to improve the use of working time. In short, we created a good working microclimate in the collectives.

In a very short time we prepared a new line for the removal face and equipped it with a KMK-97 complex. A. Serdyuk's brigade, which had begun extraction, was staffed with qualified workers. Soon miners increased longwall productivity to 1,000 - 1,200 tons.

A large flow of coal also came from the faces in the fourth section after we started using the KMK-97 complex there, replacing the conveyor line. The brigade of A. Brodyak started extracting 1,000 and more tons of coal daily.

Our tunnel drivers are also supporting the progressive extraction brigades. Month after month the collectives led by V. Andrusyuk and P. Pegrik are digging dozens of meters of tunnels in addition to the norm.

Work with key personnel has been and remains at the center of the administration's attention. We have conducted a decisive struggle against violators of labor and production discipline. Absentee workers report their infringements to Monday staff meetings. Their violations also do not escape the attention of the "Dimitrovets", "Window of Satire", and "Lightning", which publish many copies.

Managers of mines and sections have started to visit workers' dormitories more frequently and organize leisure evenings and debates on the most diverse subjects there. They are concerned about new miner recruits. At each section it has become the rule that all school graduates and young workers accepted at the mine pass a work test under the leadership of a teacher. Progressive production workers with extensive experience and having a knack for educational work, help the newcomers more rapidly master the profession and give them a feeling of responsibility for it.

K. A. Severinov, a Hero of Socialist Labor and deputy to the UkSSR Supreme Soviet, is a good example of such tutelage. Together with members of his brigade he has repeatedly assumed supervision over lagging collectives and given on-the-spot help to miners in mastering progressive work methods.

The mine's technical and production services are operationally solving problems involving the enterprise's smooth functioning and are outlining prospects for its development. We are striving to see that every face produces above-plan coal. Additional workers have been added to sections conducting installation work. Recently the tenth northern longwall was put into operation. Every day it is now producing dozens of tons of coal above the target.

This year our miners have already shipped customers 20 railroad consists of high quality coal in addition to the plan. The collective is confident that the 11th Five-Year Plan targets will be successfully met.

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## COAL

### MINE CREW LEADERS DESCRIBE SITUATION

Kiev PRAVDA UKRAINY in Russian 24 Jun 83 p 2

[Article by A. Zolotarev and V. Minakov, coal removal brigade leaders at the Ternovskaya Mine, Pavlograd Coal Association: "The Power of the Collective"; passages enclosed in slantlines printed in boldface]

[Excerpt] With a debt of 52,000 tons of coal -- these are the sad results with which our mine's collective completed last year. An effect was had by deteriorating mining geological conditions, the low reliability of many units, the lack of spare parts, etc. However, one must honestly admit that the miners themselves did not always stand tall. There were cases of a careless attitude towards equipment, violations of labor discipline and errors in work organization.

The power of any collective is manifested in difficult situations. It must be said that to the honour of our miners they didn't loose heart after these failures. At the beginning of the year we carefully analyzed the reasons for unsatisfactory work. We decided to begin with the main problem -- bringing order into all sections and strengthening labor discipline.

It may seem strange that initially the labor discipline indicators declined. However, this did not occur because of an increase in absenteeism or lateness. /The collective simply decided that it had enough of covering for negligent workers just for the sake of good reports./

The prevention council became markedly more active. "Alerts" and "telegrams" appeared at mine administration bulletin boards. Violators don't like it when their shady dealings are exhibited for general viewing and derision. Absenteeism and lateness began to decline. Workers at the labor and wages department calculated that just due to strengthened labor discipline the miners collective will produce an additional 500-600 tons of coal.

We did something important by organizing the seventh extraction brigade. Prior to that there were six longwalls at the mine. The coal extracted there was only barely enough to fulfill the plan. If work stopped at just one of the walls then the entire collective did not meet the target. Now we have reserves.

We also place great hopes upon our equipment. The Ternovskaya has long had a unique area for testing the latest models of mining equipment. Here the Donbass



complex and a series of tunnel driving combines got their start in life. Recently we began to test another innovation, the KD-80 extraction complex.

The productivity of the complex is 1.5 fold higher than that of previously produced machines. Working conditions are also better here. V. P. Vlasov's brigade, which services this unit, initially produced 750 tons daily, and some days up to 1,000 tons. By the end of the month the brigade intends to reach a daily norm of 1,000 tons and it will undoubtedly reach its mark.

How are things going at the mine today? /True, we didn't begin the year in the best shape; in January we were 5,000 tons of coal short. However, in the following months we wiped out the debt and now we are 6,800 tons above the plan.

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CSO: 1822/345

## COAL

### COAL MINERS URGED TO MAKE UP SHORTAGES

Kiev PRAVDA UKRAINY in Russian 24 Jun 83 p 2

[Editorial: "Collectives of Lagging Mines in the UkSSR Ministry of the Coal Industry Have Engaged in a Struggle Under the Slogan: Stepping Into the First Ranks. The Main Goal: Extinguish the Debt Formed Since the Beginning of the Five Year Plan" ; passages enclosed in slantlines printed in boldface or underlined]

[Text] / A cardinal increase in labor productivity/ -- this is how the June Plenum of the CPSU Central Committee defined the key task for the present and the future. Above all, this requires bringing order into what we have, ensuring the most rational use of production and scientific potential and ending the lagging of sectors and enterprises.

This party directive was accepted by the republic's miners as a militant program of action. UkSSR Minugleprom [Ministry of the Coal Industry] has many progressive enterprises. Thanks to their selfless labor in the third year of the five-year plan the sector somewhat improved its work. Coal extracted in addition to the plan came to the surface. However, only the first step has been taken. Improvements in work organization and in the use of highly productive mining equipment and unjustified losses of work time still prevent collectives at many mines from breaking through. This is disturbing to communists in the sector, specialists and workers at coal and rock faces.

During the discussion of the draft to the Law on labor collectives, miners at a number of enterprises which, for a variety of reasons, were lagging, in studying the materials of the July Plenum of the CPSU Central Committee and comrade Yu. V. Andropov's programmatic speech to the Plenum, decided to make the breakthrough, extinguish their debt and fulfill the five-year plan's targets.

The UkSSR Minugleprom board and the Presidium of the Ukrainian Republic Committee of the Coal Industry Worker's Trade Union passed a special decree on measures directed towards the intensification of organizational, technological and mass work at these enterprises. / The goal is to make the breakthrough and extinguish the coal debts./

In particular, taking into consideration the specific situation, the decree provides for organizational-technical measures and a precise schedule to ensure stable work during the second half of the 11th Five-Year Plan. These measures

should improve the use of mining equipment, the application of the newest achievements of science and technology, the introduction of the experiences of progressive coal enterprises, the strengthening of labor and executive discipline and the extensive spreading of socialist competition.

/ The conditions have been developed for a labor contest of miners under the slogan: "Stepping Into the First Ranks". The victors will be those collectives which, while lagging in the previous quarter, during the report period fulfill the plan and socialist obligations for coal extraction, preparatory work, labor productivity and coal quality. In summing up results of the competition consideration is given to the state of work safety, labor discipline and the observation of norms for public order. The results are summed up quarterly upon submission to the association and trade union territorial committee.

/ As an incentive to collectives which have overcome lagging and moved to the front lines, challenge banners of the ministry, sectorial trade union and the editorial board of PRAVDA UKRAINY have been established and include the payment of bonuses (8,000 rubles each). The bonuses will be awarded in ceremonies at workers' general meetings./

The bonuses are to be distributed to workers who have especially distinguished themselves in implementing measures permitting the mine to overcome lagging. The size of the bonuses should be: for workers, 10-30 percent of the monthly wage, and for engineering-technical workers and employees, 10-20 percent of the monthly salary. Eighty percent of the bonus fund is intended for material incentives to workers. Lists of those awarded will be posted at order boards.

The republic's miner collectives have begun competition under the slogan: For Output in the First Ranks. The next socialist competition page will also be dedicated to this theme.

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COAL

#### LEADING AND LAGGING MINES NAMED

Kiev PRAVDA UKRAINY in Russian 24 Jun 83 p 2

[Article: "Who is Ahead -- Who is Behind"]

[Text] WHO IS AHEAD

All six mines and mine administrations at the Krasnoarmeyskugol' [Red Army Coal] Association (General Director P. M. Bigma, First Secretary of the Krasnoarmeysk Party Gorkom O. N. Leonov) have successfully dealt with the plan for for five months. During this period 390,000 tons of coal were extracted in addition to the plan; and extraction increased by 76,000 tons in comparison with the same period last year.

Associations fulfilling the five month plan, but still having lagging enterprises:

Donetskugol' (General Director A. P. Fesun, First Secretary of the Donetsk Party Gorkom V. G. Ignatov) produced 648,000 tons above the plan;

Toresantratsit (General Director V. I. Malov, First Secretary of the Torez Party Gorkom V. P. Zhitnikov), produced 257,000 tons above the plan;

Shakhterskantratsit (General Director V.D. Martovitskiy, First Secretary of the Shakhtersk Party Gorkom V. L. Petrovich), produced 173,000 tons above the plan;

Sverdlovantratsit (General Director G. A. Chitaladze, First Secretary of the Sverdlovsk Party Gorkom N. P. Ivanov), produced 161,000 tons above the plan.

#### WHO IS BEHIND

Associations not meeting the five month plan and having a larger number of lagging enterprises:

Selidovugol' (General Director S. V. Yanko, First Secretary of the Selidovo Party Gorkom Yu. A. Burgas) was 296,000 tons short of the plan;

Dzerzhinskugol' (General Director A. A. Fomenko, First Secretary of the Dzerzhinsk Party Gorkom G. N. Velichko) was 292,000 tons short of the plan;

Pervomayskugol' (General Director V. I. Prorochenko, First Secretary of the Pervomaysk Party Gorkom V. P. Mozalev was 291,000 tons short of the plan;

Stakhanovugol' (General Director A. M. Grinev, First Secretary of the Stakhanov Party Gorkom N. F. Dyma) was 169,000 tons short of the plan.

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COAL

PROMISING MINES LISTED

Kiev PRAVDA UKRAINY in Russian 17 Jul 83 p 2

[Article: They Have Real Potentials"]

[Text] The following mine administrations and mines have real potentials even in the third quarter of this year to overcome lagging, settle accounts with regard to the coal debt and make a claim to a prize position in the competition under the slogan: "For Output in the First Ranks":

Oktyabr'skoye, Mushketovskaya, imeni the newspaper PRAVDA, Mospinskaya in the Donetskugol' Association;

imeni A. B. Batov, imeni K. I. Pochenkov in the Makeyevugol' Association;

No 21 in the Sovetskugol' Association;

imeni D. S. Korotchenko, Ukraina, Kurakhovskoye in the Selidovugol' Association;

imeni V. I. Lenin, imeni Yu. A. Gagarin in the Artemugol' Association;

Novaya, Novodzerzhinskaya in the Dzerzhinskugol' Association;

Yunyy Kommunar, Ol'khovatskaya in the Ordzhonikidzeugol' Association;

imeni V. I. Chapayev, Fominskoye, imeni 27th Party Congress in the Shakhtersk-antratsit Association.

Rassvet, Zuyevskoye in the Oktyabr'ugol' Association

No. 3-bis, Removskaya in the Torezantratsit Association

Slavyanoservskaya in the Voroshilovgradugol' Association;

imeni I. V. Chesnokova, Vergelevskaya, Lomovatskaya, Luganskaya, Proletarskaya in the Stakhanovugol' Association;

Gorskaya in the Pervomayskugol' Association;

imeni G. G. Kapustin, Matrosskaya in the Lisichanskugol' Association;

Donetskaya, imeni 50 Years of the USSR in the Krasnodonugol' Association;

Krasnoluchskaya, imeni IZVESTIYA, Miusinskaya, Zaprozhskaya in the Donbass-antratsit Association;

Komsomol'skaya in the Antratsit Association;

imeni M. V. Frunze in the Roven'kiantratsit Association;

imeni P. L. Voykov, Leninskaya, Sverdlovskaya in the Sverdlovantratsit Association;

imeni V. I. Lenin, No. 8, Velikomostovskaya in the Ukrzapadugol' Association;

Vatutinskoye in the Aleksandiryaugol' Association.

Comrade miners! Search out internal reserves to increase labor productivity, make better use of mining equipment and strengthen labor discipline and production order. Overcome lagging and move to the first ranks among the competing collectives. This is a matter of our miners honor!

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CSO:1822/345

## COAL

### TUNNELING OPERATION PROBLEMS PLAGUE MINE

Kiev PRAVDA UKRAINY in Russian 17 Jul 83 p 2

[Article by A. Zharkikh, correspondent: "When They Loose Perspective"]

[Excerpts] For a long time the Krasnodon Mine imeni 50 Years of the USSR did not know defeat. Then suddenly there was a breakdown. In the first quarter of this year its miners went 35,000 tons of coal into debt.

It is not that this came suddenly. An attentive study of the collective's productive activities shows that a tendency towards decline could be noted even two years ago. It was then that tunnel drivers began to give up their position and there was a marked drop in the rates of mine tunnel preparation.

Before me is a summary of opening and preparatory operations since the beginning of the five-year plan. In May 1981 the plan for digging main underground haulage lines was, for the first time, not completed. The shortfall was sort of small, only 105 meters. Unfortunately, however, it became the starting point for tunnel drivers' negative work indicators. This went on month after month for two years. Now it turns out about three kilometers of tunnels have not been dug.

This year the mine did not have a single meter of reserve line at the removal face. The extraction brigade of I. P. Zenikov, for example, found itself completely without a wall. It was compelled to work on the preparation of a new face itself, while the enterprise does, after all, have nine tunnel driving brigades designated with providing a work front for four sections.

The mine collective has now again taken heart. Recently a new face went into operation and I. P. Zenikov's brigade produced the first tons of fuel from it. A precise schedule for extinguishing the debt has been developed at the enterprise. It is intended to increase the amount of coal extracted every month. This will be distributed by ten day period and have engineering feasibility studies. It was decided to completely make up the debt by Miners' Day, and by the end of the year produce at least 15,000 tons of coal above the plan.

How are things going with preparatory tunneling operations. Are the tunnel drivers delivering again?



The mine's director, A. B. Konovalov said: "We have introduced two powerful 4PP-2 tunneling combines. We place great hopes upon them and are giving the most serious attention to the work of tunnel drivers."

Well, it's a promising statement. When discussions turn to the unsatisfactory work of any coal enterprise, the main reason is always revealed to be that coal removal face lines were not prepared. This is certainly true: if you are set back by meters you will lose tons. The situation created at the Mine imeni 50 Years of the USSR is clear proof of this. The introduction of some combines will not straighten it out. It is necessary to radically change the very attitude towards the preparation of mining operations.

The administration and party committee at the Mine imeni 50 Years of the USSR are clearly negligent towards problems in the enterprise's development. They live only for the present day, not thinking about the prospects for tomorrow. It is permissible to ask: Where were specialists at the Krasnodonugol' Association and the Krasnodon Party Gorkom looking for two years?

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## COAL

### MINERS' LETTER REVEALS EQUIPMENT PROBLEMS

Kiev PRAVDA UKRAINY in Russian 24 Jun 83 p 2

[Letter by V. Misinev, miner brigade leader; V. Bershak S. Rusetskiy, miners; and P. Shchelychev, electric locomotive operator brigade leader, Belorechenskaya Mine, Voroshilovgradugol' Association: "The Faces Await Equipment"]

[Text] At one time our mine was in good standing not only with the Voroshilovgradugol' Association, but also with the oblast. The collective was constantly achieving high coal extraction indicators. Things went especially well when the Donbass mechanized complexes were introduced at the faces. Average daily loading per longwall increased to 700 tons.

We now remember this as a happy time. We have been lagging since the beginning of the 11th Five-Year Plan and owe about 300,000 tons of coal. It is bitter to admit that we have failed to deliver so much fuel to the national economy.

Just what has happened? Why has a generally strong, competent collective turned up among the debtors? Has it really forgotten how to work and lost the ability to extract coal? We frequently ask ourselves this and other questions; often discussing them at party and worker meetings. We have long sought for the basic reasons hindering a breakthrough. We literally analyzed everything: the organization of miners' labor, the interactions between all services, the system for operating and repairing equipment and the work of engineering cadre.

It all began when we started working the thin seams of the Gorlovskaya formation. The mining geological conditions turned out to be very difficult: the roof consists of monolithic sandstone and the footwall of weak clay. If the sandstone crumbles no kind of supports can retain it. The supports are set so that they cannot be dislodged without explosives.

What only we didn't do--we blasted the roof and strengthened support sections. It didn't help. We became unable to fulfill the state targets. How can they be fulfilled if the generally good equipment turns out to be unsuitable for the present mining geological conditions?

What is the way out of the situation which has evolved? We thought about increasing the number of faces so that even with small loadings the debt would be gradually extinguished. However, there are not enough workers for this.

We decided to study the operations of coal mines having similar conditions. The collective at the Mine imeni Volodarskiy in the Sverdlovtratsit Production Association used an interesting innovation. It introduced a KMT type complex with a mechanized roof support section with increased capacity. Now the miner brigade of P. Likholetov extracts more than 1,500 tons of coal daily with its help.

Our specialists looked over mining operation systems and studies. It became apparent that only with the help of such complexes could we be able to fulfill state plans. We put in an order for new equipment. However, there was none! Neither the Voroshilovgradugol' Association nor the UkSSR Minugleprom could help us.

Now the managers of the mine and even the association sound the horn, and convincingly demonstrate the necessity of allocating us at least two such complexes. A paper whirlwind has been stirred up, however, there has been no increase in coal from this. Every day we unfortunately put minus indicators on the board.

The distribution of mining equipment in the coal industry is, in general, chaotic. Sometimes expensive combines and mechanized supports are sent to faces where they produce miserly yields. They could very successfully be replaced by cutting machines, for example. They are not available where they are more essential.

We are not asking for the KMTs for the sake of an experiment. They are now as essential to us as air is, for without them we cannot produce the necessary amounts of coal. And it is this which is needed by the economy.

11,574

CSO: 1822/345

## COAL

SELECTED SYNOPSSES OF ARTICLE IN UGOL' UKRAINY, NO 10, 1983

Kiev UGOL' UKRAINY in Russian No 10, Oct 83

UDC 622.232-52

### AUTOMATION OF MINE-FACE EQUIPMENT--INTRODUCTION AND PROBLEMS

[Synopsis of article by V. A. Antipov from UGOL' UKRAINY No 10, 1983 pp 1-4]

[Text] Increase in the utilization effectiveness of new equipment and in the safety and labor productivity of underground miners as a result of automating the equipment being used. 3 illustrations.

UDC 622.22.013.52

### OPENING UP UNDERGROUND-MINE FIELDS AT GREAT DEPTHS IN THE DONBASS

[Synopsis of article by I. M. Andreyev and G. V. Khalangot from UGOL' UKRAINY No 10, 1983 pp 5-7]

[Text] Analysis of schemes for opening up deep underground mines in the Donbass. The basic elements of schemes for opening up deep mines that are being designed, where there is gently sloping or slanted deposition of the seams. Tasks for further improvement. 1 illustration, 2 references.

UDC 622.834:622.268.12

### PROTECTION OF MAIN-SEAM WORKINGS BY PAIRED PILLARS

[Synopsis of article by A. N. Khudyakov, A. F. Borzykh and A. I. Nelyuvov from UGOL' UKRAINY No 10, 1983 pp 7-10]

[Text] The protection of workings by two pillars of unequal width, which are separated from each other by a continuous unloading space (or working). The parameters and an experimental check of the method in the underground-mine environment of Roven'kiantratsit [Roven'ki Anthracite Production Association]. 3 tables, 4 illustrations.

UDC 622.063.46

### CLASSIFICATION OF METHODS FOR UNMANNED COAL EXCAVATION

[Synopsis of article by Zh. P. Varekha from UGOL' UKRAINY No 10, 1983 pp 10-11]

[Text] Deficiencies of existing classification methods and equipment for unmanned coal excavation. A proposed classification of underground-mine methods for unmanned coal excavation will enable the limits to be outlined and the strategy for exploring for new equipmmental and technological solutions to be planned. 1 illustration, 3 references.

UDC 622.268.13 "Vinnitskaya Underground Mine"

FULFILLMENT OF 3-YEAR PLAN FOR MINING COAL OF VINNITSKAYA UNDERGROUND MINE  
AHEAD OF SCHEDULE

[Synopsis of article by M. V. Slyuta from UGOL' UKRAINY No 10, 1983 pp 12-14]

[Text] Mine-geology conditions and work organization at the underground mine. The advanced GROZ brigade supervised by P. Ye. Venger. Improvements and commitments. 2 illustrations.

UDC 622.271:621.879.48

OPERATION OF MOROZOVSKIY STRIP MINE

[Synopsis of article by D. M. Lopatnev from UGOL' UKRAINY No 10, 1983 pp 14-15]

[Text] Experience in operation of the Morozovskiy Strip Mine of Aleksandriya-ugol' [Aleksandriya Coal Production Association]. Technical and economic indicators. The socialist competition.

UDC 622.25:658.387 "Underground Mine imeni gaz. "Sots. Donbass"

HIGH-SPEED TUNNELING OF AN AIRWAY BY THE BRIGADE-CONTRACT METHOD

[Synopsis of article by Ye. B. Novik and A. F. Adason from UGOL' UKRAINY No 10, 1983 pp 16-17]

[Text] Making an airway shaft at the Underground Mine imeni gazeta "Sotsialisticheskaya Donbass" (of Donetskugol' [Donetsk Coal Production Association]) by A. M. Gavlyuk's brigade by the brigade-contract method. Achievement of a tunneling speed of 200 meters per month. 3 illustrations.

UDC 622.232.063.54.002.235

WORKLOAD STANDARDS AT INTEGRATED MECHANIZED MINE FACE OF SLOPED AND STEEP  
SEAMS

[Synopsis of article by V. L. Ivanov, V. N. Knigin and V. F. Ivanov from UGOL' UKRAINY No 10, 1983 pp 18-19]

[Text] Methodology for determining coefficients for calculating standard workloads at mine breakage faces equipped with longwall mining machines and tunneling machines. 1 table.

UDC 658.012.12:622.3.013

IMPROVEMENT OF STANDARDS BASE WHERE PRODUCTION IS BEING INTENSIFIED AT UNDER-  
GROUND MINES

[Synopsis of article by A. A. Studennikov from UGOL' UKRAINY No 10, 1983 pp 19-20]

[Text] Economic justification for a dynamic standard for a mode of functioning of underground coal mines and an integrated evaluation of their operation.

## OPERATION OF MECHANIZED SUPPORTS UNDER LEASING CONDITIONS IN TOREZANTRATSIT ASSOCIATION

[Synopsis of article by V. I. Chekavskiy, V. M. Klepikov and V. Ye. Ivanov from UGOL' UKRAINY No 10, 1983 pp 21-23]

[Text] The transfer of mechanized supports to centralized control in Torezantratsit [Torez Anthracite Production Association] with subsequent leasing of their underground mines. The advantages of such an organization for the operation of supports. The purpose and tasks of specialized control. 2 tables, 1 illustration.

UDC 622.272.211

## CALCULATION OF WORKLOAD AT MINE BREAKAGE FACE OF GENTLY SLOPING SEAMS

[Synopsis of article by I. G. Roshchupkin from UGOL' UKRAINY No 10, 1983 p 23]

[Text] Calculation of workload at a longwall, taking into account regression equations for calculating total specific time spent as a function of breakage-face length. 1 table.

UDC 622.2:621.398

## PROSPECTS FOR USING FIBER TECHNOLOGY IN COAL INDUSTRY

[Synopsis of article by N. A. Chekhlatyy and N. P. Demchenko from UGOL' UKRAINY No 10, 1983 pp 24-25]

[Text] Requirement for fiber-optics communications systems for underground mines. A scheme for a fiber-optics communications system intended for transmitting information to ASU TP's [automated systems for controlling technological processes and production] of underground coal mines and of operating complexes equipped with robotics. 2 illustrations.

UDC 622.232.83:62-52

## UNIFICATION OF APPARATUS FOR REMOTE CONTROL OF TUNNELING MACHINES

[Synopsis of article by O. F. Danil'chuk, G. D. Podzirayev and A. V. Dolinnyy from UGOL' UKRAINY No 10, 1983 pp 26-27]

[Text] Operating principle of remote-control apparatus. Results of industrial tests. 1 illustration.

UDC 622.23.05-85

## NEW PNEUMATIC MOTOR FOR MINING EQUIPMENT

[Synopsis of article by G. N. Matsenko and A. F. Molchanov from UGOL' UKRAINY No 10, 1983 pp 27-28]

[Text] The purpose and specifications and a brief description of the design and noise characteristics and the advantages of the new high-powered K45-16 pneumatic motor, in comparison with the 8ShK40m pneumatic motor. 1 table, 1 illustration.

UDC 622.232.8-519:621.61/.63

#### VP70 VENTILATOR OF TITAN-1 COMPLEX

[Synopsis of article by S. N. Itskovich, N. K. Buzhin and O. V. Ol'khovskiy from UGOL' UKRAINY No 10, 1983 pp 28-29]

[Text] The purpose, arrangement, test results, introduction and industrial operation of the VP70 ventilator, which was developed by Dongiprouglemash [Donetsk State Institute for Coal-Machinery Design] for the Titan-1 crushing and gobbing complex. 3 illustrations.

UDC 622.232.72.001.5

#### ANALYSIS OF SCHEMES FOR OPERATING A CUTTER LOADER FOR SELECTIVE EXCAVATION OF COAL, ROCK

[Synopsis of article by A. A. Yakobson from UGOL' UKRAINY No 10, 1983 p 30]

[Text] Research of schemes for excavating coal and rock at thin, gently sloping seams by a two-auger tool, on the subject of the cutter-loader's stability factor. Recommendations on choice of rational configuration of the cutter-loader for selective excavation. 1 illustration, 1 reference.

UDC 622.233.6-85:622.24.08

#### TECHNICALLY POSSIBLE PRODUCTIVITY OF DRILLING MACHINES WITH PNEUMATIC DRIVE

[Synopsis of article by V. I. Zavertnev from UGOL' UKRAINY No 10, 1983 pp 31-32]

[Text] Methodology of calculation that will permit the technical possibilities of existing drilling machines to be evaluated adequately and the optimal parameters to be chosen for drilling machines that are being designed, considering the probabilistic nature of the load, the air-feed pressure and the drive's critical moment, and the characteristics of the drilling machine. Ways for increasing the effectiveness of the B-100-200 and B-68KP drilling machines. 1 illustration.

UDC 622.625.28-83:62-192(477.61/.62)

#### RELIABILITY OF ELECTRIC-LOCOMOTIVE HAULING AT CENTRAL DONBASS REGION UNDERGROUND MINES

[Synopsis of article by V. S. Ovcharov and L. F. Svintsitskaya from UGOL' UKRAINY No 10, 1983 p 32]

[Text] Status of electric-locomotive hauling in the Central Donbass [Donets Coal Basin] Region environment. The reliability of electric-locomotive hauling and recommendations for raising its effectiveness.

UDC 622.625.242

#### SELF-DUMPING UNDERGROUND-MINE CARS

[Synopsis of article by I. S. Pachikov, N. V. Pachikova and A. M. Panchenko from UGOL' UKRAINY No 10, 1983 pp 33-34]

[Text] New design of a self-dumping car that will allow the utilization factor of the car's volume to be increased. 1 table, 3 illustrations.

UDC 621.313.13-213.34.019.3

EFFECT OF VIBRATIONAL SHIFTS OF STATOR WINDINGS ON MOTOR LIFE

[Synopsis of article by V. D. Glavnyy, V. G. Orlov and A. S. Markelov from UGOL' UKRAINY No 10, 1983 p 34]

[Text] Effect of simultaneously acting factors (stator-winding temperature, startup frequency and relative humidity of the ambient air at 40 degrees C) on motor life. 1 table.

UDC 622.831.325.3

SUDDEN FRACTURE OF SEAM FLOOR AND OUTBURST OF METHANE IN UNDERGROUND MINE WORKINGS

[Synopsis of article by A. M. Morev and S. M. Kloyzner from UGOL' UKRAINY No 10, 1983 pp 35-36]

[Text] A physical model of breakdowns of the floor of a seam and of methane outbursts in underground mine workings. Results of tests and calculations of buckling, strains and bending moments that arise in mine-working floors. 2 illustrations, 3 references.

UDC 622.831.322.005.5

CONNECTION BETWEEN OUTBURST HAZARD OF A SEAM AND THE GAS'S HELIUM CONTENT

[Synopsis of article by V. G. Kochetov from UGOL' UKRAINY No 10, 1983 pp 36-37]

[Text] Substantiation of dependence of helium content in gas that escapes freely from seams that have an outburst hazard on the phase transformations of methane when the established gas-dynamic state of the coal body has been disturbed. The possibility of using the helium content as a criterion for evaluating the gas-dynamic activity of coal seams. 1 illustration.

UDC 622.812/.814:622.244.5

ENERGY OF A COAL BODY AND CONDITIONS FOR ITS EMERGENCE DURING COAL, GAS OUTBURSTS

[Synopsis of article by I. S. Fridman from UGOL' UKRAINY No 10, 1983 pp 38-39]

[Text] Data on types of energy of a coal body that is associated with various forms of mine-pressure phenomena. Results of research of the energy-release process. Recommendations on excavating the seam and increasing the reliability of antioutburst measures.

UDC 622.83:622.016.25(477.61/.62)

PROTECTION OF SERVICE HOLES FROM SHIFTS OF ROCK DURING UNDERCUTTING

[Synopsis of article by I. A. Levchenko, Ye. V. Boshenyatov and A. K. Agarkov from UGOL' UKRAINY No 10, 1983 pp 40-41]

[Text] New method for protecting service holes from mine-rock shifts during coal-field excavation (filling the annular space with pliable particulates and providing a potential for the shifting rock mass to move relative to the casing pipe). 1 table, 1 illustration, 2 references.



UDC 622.243.27

EFFECT OF DRILL STRING ON INTENSITY OF CURVATURE OF UNDERGROUND HOLES

[Synopsis of article by V. F. Golovchenko from UGOL' UKRAINY No 10, 1983 p 41]

[Text] Factors that cause azimuthal curvature of horizontal and slanted holes drilled from workings. Recommendations on reducing intensity of hole curvature. 1 illustration.

UDC 622.7.092:622.33.543:621.039

DETERMINATION OF LIGHT-ELEMENT CONTENT OF COAL BY ENERGY-DISPERSING X-RAY FLUORESCENCE

[Synopsis of article by N. M. Kochmola, L. P. Polekhina and R. R. Pepenin from UGOL' UKRAINY No 10, 1983 pp 42-43]

[Text] Research of the effects of the surface quality of samples being analyzed, the distance between the surface of the sample and the radiation detector, and the operating modes of the apparatus on the results of energy-dispersing X-ray fluorescent determination of light elements in coal. 2 illustrations.

UDC 622.281.74.012.2(-87)

ANCHOR SUPPORTS AND MEANS FOR MONITORING ROOF CONDITION

[Synopsis of article by Ya. I. Yukhimov and V. G. Gal'perin from UGOL' UKRAINY No 10, 1983 pp 44-46]

[Text] Design and singularities of various types of anchor supports: tubular, polymeric and pliable; and experience in their use in foreign underground mines and pits. Designs and methods for using monitoring equipment for installed rods, the loads thereon, and mine-pressure change. 5 illustrations.

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CSO: 1822/48

## COAL

### BRIEFS

TO DEEP HORIZONS -- Voroshilovgrad -- Miners at the Mine imeni Menzhinskiy, Pervomayskugol' are mastering the earth at great depths and rapid rates. The tunnel driving brigades of I. Kosenovo and V. Danil'chenko are two months ahead of schedule in laying the track to the new coal gallery, located almost one kilometer underground. The first few thousand tons of coking coal have been extracted here. Associates at the Stakhanovsk affiliate of the Kommunarskiy Mining-Metallurgical Institut helped accelerate the tunnel driving. They suggested setting double charges of explosives, divided from one another by the so-called anti-detonation barrier. Initially a "ring" operates close to the drift, and later a deep ring operates. As a result, the excavation of sandstone almost doubled. The introduction of the new gallery ahead of time opened good prospects for the miners. Two comprehensively mechanized long walls were built equally quickly here to replace worked out ones on the upper "floor". The transfer here was not reflected in mine productivity. The enterprise has more than 25,000 tons of blast furnace fuel on above-plan account. [By TASS] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 26 Jul 83 p 1] 11,574

ABOVE PLAN ECHELONS -- Karpinsk -- Since the beginning of the year miners at the Vakhrushevugol' Association have shipped customers 20 above plan, fully loaded railroad echelons full of fuel. When one takes into consideration the effect of the 0.1 percent ash reduction attained by the miners it equals yet another above plan consist. Fuel extraction above the plan target here is attained through a steady growth in labor productivity. For the enterprise in general it is 1.5 percent higher than the plan. One-fourth of all brigades at the mine at the association exceed sector norms for the highest labor productivity. The tone in competition for the core year of the five-year plan is set by Yu. Shchitov's excavator brigade, the removal brigade of honored miner M. Rakhimov and the stripping excavator crew led by V. Nikitin. [By A. Mal'tsev] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 22 Jul 83 p 1] 11,574

MINISTRY RESPONDS -- The USSR Ministry of the Coal Industry has examined the review and considers the criticism justified. As far as the scientific-technical program's experimental installation for cleaning drainage and mine waters in the KATEK zone is concerned, our ministry has turned to USSR Gosplan and USSR Gosstroy for a decision on financing its planning and construction using reserve resources for unforeseen work and outlays from the summary estimate for construction of the first section of the Berezovskiy-1 Strip Mine in the Krasnoyarskugol' Production Association. [By V. Beliy] [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 32, Aug 83 p 2] 11,574

ABOVE-PLAN COAL -- This year the collective at the Morosovskiy Strip Mine, Aleksandriyugol' Association has produced about 40,000 tons of coal above the plan. This is the result of rhythmic excavator operations and the timely preparation of extraction fronts; the overburden stripping work plan has been overfulfilled by two million cubic meters. The excavator brigades of M. A. Dmitriyev and V. N. Bakun are attaining the best indicators in the competition. [By V. Pugach] [Text] [Kiev PRAVDA UKRAINY in Russian 4 Aug 83 p 1] 11,574

MINE IS AHEAD -- Voroshilovgrad Oblast -- Section No. 1 of the Mine imeni Menzhinskiy has sent up the first few thousands of tons of coal on the 1984 account. The miners are successfully using combines with "Sputnik" roof supports. Average daily loadings per longwalls exceed the plan figures by 100 tons. The prime cost per ton has been reduced by 29 kopecks compared to the norm. Great contributions to this were made by link members M. B. Sukhomlin and A. D. Batov; coal combine operators V. D. Artemenko and B. P. Nefedov; and coal removal face worker A. A. Gerasin. [By S. Ivanenko] [Text] [Kiev PRAVDA UKRAINY in Russian 4 Aug 83 p 1] 11,574

TWO KILOMETERS DOWN -- Donetsk -- Underground explorers in the oldest fuel region are studying the prospects for Donbass coal right up to the year 2000. Yesterday the drills of geologists looking for new anthracite deposits around the city of Torez reached the 2,040 meter mark. At this record level the brigade of foreman V. Antipchenko for the first time discovered a thick coal seam. In drilling the hole, the drillers went through 19 seams of anthracite. Specialists conclude that this will permit the construction of a large coal enterprise here. More than 10 mines, either active or under construction in the Donbass have already passed through the 1,000 meter barrier and have entered the ranks of Europe's deepest. What awaits miners at these deeper levels? This question is to be answered by a series of stratigraphic test wells in various regions of the basin. [Text] [Moscow PRAVDA in Russian 16 Jul 83 p 1] 11,574

TWO EXCAVATORS -- Krasnoyarsk -- Two powerful excavators, the assembly of which is now underway, will be working the new faces of the Borodinskiy Strip Mine of the Kansk-Achinsk Fuel and Energy Complex. These machines are the first to be produced at the Krastyazhmash [Krasnoyarsk Heavy Machinery] Plant now under construction in Krasnoyarsk. The excavator builders intend this year to manufacture six powerful machines. This is the Siberians' concrete answer to the decisions of the November (1982) CPSU Central Committee Plenum. [Text] [Moscow TRUD in Russian 14 Jan 83 p 1] 11,574

MINE ELECTRONICS PLANT -- Nal'chik -- Electronic-acoustic instruments capable of highly accurately determining the depth of wells and exploratory holes have been manufactured at the semi-conductor instrument plant in Nal'chik. Plant specialists spent some time with Tyrnyauz miners extracting tungsten-molybdenum ore. In order to extract the "stellar metals, small explosions are extensively used in the tunnels. The miners have complained of difficulties in determining the depth of exploratory holes. At the plant they came to the conclusion that a new, higher quality instrument was needed. The creators of the depthometer are A. Barsokov, chief metrologists, and apparatus adjusters Yu. Balaknitskiy and A. Oputin. They used the principle of an acoustically reflected signal as the basis. It is transformed into an electrical impulse in an electronic device.

This has resulted in the creation of a small, highly accurate instrument. It is also important that the new instrument not only uses its invisible ray to determine the main indicator, depth, but also can detect and register well damage. It is not only useful to blasters and surveyors, but is also suitable for petroleum workers, geologists and communal service workers. One shines its rays into a damaged oil well, sewer or water pipe and the exact location of the emergency will be shown in figures on a screen. [By K. Aliyev] [Text] [Moscow IZVESTIYA in Russian 21 Mar 83 p 1] 11,574

MORE POWERFUL ROTARY -- Ekibastuz -- V. Neupakoyev's brigade 25 percent exceeded the planned capacity of the "Central", the oldest rotary bucket complex in the mine, with a productivity of 1,000 tons of coal per hour. Today, 13 June, it has extracted 1.5 million tons of fuel since the beginning of the year. As foreseen by obligations in honor of the 25th year of the movement for shock workers and collectives of communist labor, 100,000 tons of above-target fuel have been shipped. This increased excavator loading was assisted by specialists at the firm support point opened at the strip mine by the the Donetsk Machine Building Plant imeni Leninist Komsomol of the Ukraine. The enterprise has provided excavator operators with a number of improved components. At the miners' suggestion the manufacturing plant made a number of changes in the excavator's design. Soon new components will be installed on other excavators of the Ekibastuzugol' Association. [By N. Krivinets] [Text] [Ashkhabad TURKMEN-SKAYA ISKRA in Russian 14 Jun 83 p 1] 11,574

HYDRAULIC MINE --Novokuznetsk -- The first section of an automatic control system has gone into operation at the Yubileynaya Mine, the largest coal enterprise in the Kuzbass using the hydraulic method of coal extraction. Here water, which miners consider their eternal enemy, conducts all the main labor intensive operations. It is unusual to see a coal face operating without miners. The hydraulic monitor, in the role of the face breaker, directs high pressure water against the coal face and crumbles it. The operator stands far away and with the help of a light portable panel controls the "water cannon". The water not only extracts, but with the help of automatic machines, moves the coal from the face in pipes. The system's startup is a new step along the way towards coal production automation. With its introduction dispatchers operationally follow the units' work underground and account for the coal extracted. [TASS] [Text] [Moscow IZVESTIYA in Russian 24 Mar 83 p 2] 11,574

KHARANOR ROTARY -- Chita -- At the Kharanor Coal Strip Mine imeni 60 Years of the USSR, assembly has begun on yet another 1,250 ton per hour rotary bucket excavator. For several years already two such powerful machines have been reliably working the strip mine faces. They are reliably operated by the crews of V. Golubets and M. Sobolev who, in two months of this year alone have extracted 40,000 tons of fuel above the target. The operational introduction of the third rotary excavator is foreseen by the comprehensive plan for the technical modernization of this progressive enterprise in the Trans-Baykal. The miner collective is confidently moving towards the planned amount. Sixteen excavator and locomotive brigades have won the honored right to be members of the miners "millionaire club". [By V. Smirnov] [Text] [Moscow PRAVDA in Russian 1 Apr 83 p 1] 11,574

BOGATYR' MINE -- This year miners at the Bogatyr' Strip Mine decided to ship 52 million tons of coal. This is two million tons more than the enterprise's planned capacity. In order to speed up coal haulage from the mine, miners and workers at the Karagandagiproshakht Institute have worked out a plan for a new eastern siding. The expansion of the "Connection" station and a siding cut make it possible to move full consists along a new route without large costs. Construction work is on schedule. The laying of crossover switches, railroad track and the installation of other equipment is beginning. The new siding makes possible a reduction in the distance coal and overburden rock are hauled and an increase of mine capacity to 55 million tons of coal annually. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 15, Apr 83 p 16] 11,574

MINING RECORD -- S. Zubko's crew is preparing to extract the 50 millionth ton of coal to be mined by the excavator at the Bogatyr' Mine. Last year the collective broke their own record for productivity and produced an additional 700,000 tons above the target. This is the result of good work organization. Miners worked throughout the year without idle time and had no equipment breakdowns. The progressive crew also worked well this year. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 7, Feb 83 p 18] 11,574

EKIBASTUZ ROTARY -- At the assembly area at Ekibastuz work is being completed on the assembly of a SRSk-2000 rotary bucket excavator manufactured at the TAKRAF Combine in the DDR. Twelve such giants with the TAKRAF emblem are now working at the Ekibastuzgol' Association's Bogatyr' Mine, the largest surface mine in the country. It is planned to assemble another 5 by 1985. [Text] [Moscow TRUD in Russian 10 Jul 83 p 1] 11,574

TIEN-SHAN COAL -- Tash-Kumyr -- Kirghiz miners are increasing the extraction of coal by the low cost surface method. The new Kara-Tut Strip Mine has begun operation here. A high quality coal field lies in thick seams at a shallow depth. The mine will produce more than 300,000 tons of solid fuel annually. The locality's relief permits the use of the so-called transportless method of overburden stripping. The rock does not have to be hauled to a special spoil bank, as it will fill up the worked out coal seam. In addition, the coefficient of overburden stripping at the Kara-Tut field is very low: it is only necessary to move 6 cubic meters of rock for every ton of coal. [Text] [Moscow GUDOK in Russian 12 May 83 p 1] 11,574

AHEAD OF SCHEDULE -- VOROSHILOVGRAD -- Significantly outpacing the production schedule, miners from 25 progressive brigades in Voroshilovgrad Oblast have extracted more than 300,000 tons of coal above the plan since the beginning of the year. V. Polishchuk's brigade from the Krasnyy Partizan Mine, Sverdlov-antratsit Association was among the collectives achieving the best indicators. In the third year of the five-year plan it produced 45,000 tons in addition to the program and is now daily adding 600 and more tons to this figure. The extraction brigade of V. Pishkov from the Mine imeni Lyutikov, Krasnodonugol' Association and of A. Dolzhikov from the Mine imeni 24th Party Congress, Antratsit Association are also working militantly. The former extracted 35,000 tons over the target and the second 30,000 tons. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 1 Jun 83 p 1] 11,574

NEW EXCAVATORS -- Primorskiy Kray -- Coal extraction at the Pavlovsk Strip Mine will increase by almost 3 million tons annually with the introduction of 3 walking excavators build at the Urals Machinery Plant. Miners here will be among the first to master the gigantic new equipment, each bucket has a capacity of 20 cubic meters. The addition of highly productive excavators, dump trucks and other equipment and the development of new seams will permit a 2.5 fold increase in coal production here in the immediate years ahead. [TASS] [Moscow IZVESTIYA in Russian 26 Apr 83 p 1] 11,574

KUZBASS MINE -- On the 113th anniversary of Lenin's birth miners in P. I. Frolov's brigade at the Rapsadskaya Mine, the largest in the Kuzbass, produced 11,350 tons of coal in one day. Shift productivity per worker reached 197 tons. Skill, initiative, and innovations helped attain these high results. An additional cooling system was installed on the combine and the reloader unit was improved. Every miner and every brigade attempted to achieve the highest indicators on this noted day. The mine collective extracted 31,280 tons of coal in one day, breaking its all-union record. By May Day the miners will have 125,000 tons of coal on their above-plan account. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 23 Apr 83 p 1] 11,574

NEW ROTARIES -- Ekibastuz -- Miners at the Bogatyr', the nation's largest strip mine, got the sixth new rotary bucket complexes for coal extraction. The new excavators are the fruits of creative cooperation between machine builders in the DDR and miners at the Ekibastuzugol' Association. They are more reliable and comfortable than their predecessors and have greater productivity. The mine will be completely supplied with the planned amount of mining equipment when the new unit starts work. Rotary bucket excavators with a productivity of 3,000 - 5,000 tons per hour are now used here. [By P. Onopriyenko] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 8 Jul 83 p 1] 11,574

AHEAD OF PLAN -- Vorkuta -- Since the year's beginning miners at the Ayach-Yagi Mine, Vorkutaugol' Association have sent up more than 13,000 tons of coal in addition to the plan. This success was attained through improved work organization, strengthened production and labor discipline, the introduction of new technology for extraction and tunneling work and through equipment modernization. As a result it has become easier to manage the complexes, they break down less frequently and intrashift losses have been curtailed. All this has considerably raised average daily loadings at the faces. [By O. Gadabortsev] [Text] [Moscow PRAVDA in Russian 28 Mar 83 p 2] 11,574

DRILLING WORK -- Ekibastuz -- L. Perechnev's drilling brigade at the Severnyy Strip Mine, Ekibastuzugol' Association has reported fulfilling the plan for four years of the five-year plan. Skillfully using a SVB-25 unit improved by local innovators, the miners substantially increased their labor productivity. They have drilled a total of 160,000 meters. During the 10th Five-Year Plan this brigade fulfilled seven annual plans. Now, leading the competition for the highly productive use of mining equipment, the collective plans to attain yet another high mark. [P. Onopriyenko] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 3 Aug 83 p 1] 11,574

COAL PIPELINE -- Kemerovo -- This year construction begins on the nation's first experimental-production coal slurry pipeline. The line joins the Belovskiy coal region in the Kuzbass with Novosibirsk and is 256 km long. It will

annually pump up to 3 million tons of fuel. [By A. Parshintsev] [Text]  
[Moscow SEL'SKAYA ZHIZN' in Russian 15 May 83 p 1] 11,574

VAKHRUSHEVUGOL' SUCCESSES -- Karpinsk -- This year miners at the Vakhrushevugol' Association are extracting a railroad consist of coal above the plan every ten days. Miners are making maximum use of internal reserves for labor productivity growth -- it is now two percent higher than planned. The tone in competition for high extraction rates is set by the excavator brigade lead by Yu. Shchitov and the coal removal brigade led by honored miner M. Rakhimov. Since the year's beginning the association has shipped 22 above-plan consists of fuel. [By A. Mal'tsev] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 13 Aug 83 p 1] 11,574

TENTEKSKAYA MINE -- KARAGANDA -- Since the beginning of the year miners at the Tentekskaya Mine, Karagandaugol' Association have extracted 1,000 tons of above-plan coal. The use of internal reserves has permitted them to reach this high mark. Extraction section workers have mastered related specialities and are now doing some of the maintenance on mechanized complexes. The repair workers released are helping the tunnel driving service, making it possible to speed up longwall preparation at a thick seam and in the final account increase production. As a result, every day the collective sends to the surface about 1,000 tons of coal in addition to the target. [Text] [Moscow KRASNAYA ZVEZDA in Russian 16 Jan 83 p 1] 11,574

KRASNOARMEYSKUGOL' PROGRESS -- Every day two consists of railroad cars loaded with high quality coal leave the sidings at the Tsentral'naya Mine, Krasnoarmeyskugol' Production Association. During the third year of the five-year plan miners here have already sent customers about 50,000 tons of above-plan coal. This includes 15,000 tons by the brigade of V. Volkovskiy. Every day it sends up 1,400 - 1,500 tons of coal, while the target is 1,200. [Text] [Kiev PRAVDA UKRAINY in Russian 23 Jun 83 p 1] 11,574

NEW KUZBASS MINE --The day is not far off when large new mines equipped by the latest word in science and technology will go into operation in the Kuzbass. One of them, with a capacity of six million tons of coal annually, is now being built at the Baydayevskoye field and another is beginning operation in the northern part of the Kuzbass. About two million tons of coal annually will be extracted here. [By V. Andreyev] [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 21 Aug 83 p 1] 11,574

ABOVE PLAN IN DONETSK -- Krasnoarmeysk -- A million tons of above-plan coal was extracted since the beginning of the five-year plan by the brigade of USSR State Prize winner V. Ignat'yev at the Krasnolimanskaya Mine in the Krasnoarmeyskugol' Association. Effectively using powerful equipment the brigade supported an output equal to the productivity of a large mine -- 5,000 tons daily. [Text]  
[Moscow SEL'SKAYA ZHIZN' in Russian 30 Mar 83 p 1] 11, 574

LASER EQUIPPED CONTINUOUS MINER -- Yasinovataya (Donetsk Oblast) -- The Soyuz-19U machinery system ensures high speed tunneling in especially strong rock. The innovation was created by designers at the Dongiprouglemash Institute in cooperation with specialists at the Yasinovatiy Machine Building Plant. The enterprise is now completing the manufacture of the first unit, which completely eliminates miners' manual labor. The system moves under the ground without a stop, digging a five meter diameter tunnel. A laser device helps determine the direction of tunneling with high accuracy and gives a direct "translation" from the working organs to an operator's screen. The machine, operated from a single panel, shatters, collects and transports rock and installs a metal roof support. It also has provisions for a special vacuum cleaner to purify the air at the face. The testing of an experimental model of the tunneling combine at one of the mines in the Donbass demonstrated its advanced operational qualities. [TASS] [Moscow PRAVDA in Russian 24 Aug 83 p 1] 11,574

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